NEXTera ENERGY SEABROOK

June 22, 2011

10 CFR 50.55a(g)(4)(ii)
Docket No. 50-443
SBK-L-11132

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Seabrook Station

Third Ten-Year Interval Inservice Inspection and Second Ten-Year Containment Inservice Inspection Program

As required by paragraph IWA-1400(c) of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, NextEra Energy Seabrook, LLC (NextEra) hereby submits the Third Ten-Year Interval Inservice Inspection and Second Ten-Year Containment Inservice Inspection Program. This interval commenced on August 19, 2010 and concludes on August 18, 2020.

NextEra is providing this program in the attachment to this letter for information only. NRC approval is not being requested.

Should you have any questions regarding this letter, please contact Mr. Michael O'Keefe, Licensing Manager, at (603) 773-7745.

Sincerely,

NextEra Energy Seabrook, LLC

Paul O. Freeman
Site Vice President

A047
NRR

Attachment: NextEra Energy Seabrook Third Ten-Year Interval Inservice Inspection and Second Ten-Year Containment Inservice Inspection Program

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ATTACHMENT TO SBK-L-11132

RMD Controlled Copy _____

SEABROOK STATION

REFERENCE MANUAL

Inservice Inspection Reference

Approvals

ISI Program Owner		Date:	3/18/11
Engineering Manager - Programs		Date:	3/18/11
Engineering Director		Date:	3/25/11

SIIR
Rev. 13

Manual Owner:
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INSERVICE INSPECTION REFERENCE (SIIR)

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1.0 INTRODUCTION

1.1 General

This document establishes the Inservice Inspection Program Plan for the third ten-year Inservice Inspection (ISI) interval and the second ten-year Containment Inservice Inspection (CISI) interval for component surfaces, welds, supports, bolting, pump casings, valve bodies, and reactor vessel internals at Seabrook Station, Unit 1.

The Class 1, 2, 3, CC and MC systems, components, component supports, parts and items subject to examination have been identified as set forth in the 2004 Edition of Section XI of the ASME Boiler and Pressure Vessel Code, within the limitations and modifications specified by the Code of Federal Regulations (CFR) in 10 CFR 50.55a(b)(2). Tables 2.1 and 2.4 of Chapter 2 and Table 4.1 of Chapter 3 summarize the systems, components, component supports, parts and items subject to and selected for examination as required by ASME Section XI. NextEra Energy Seabrook (Seabrook) implementation of the limitations and modifications in 10 CFR 50.55a(b)(2) is addressed in Section 1.19.

During the second ten-year interval, an alternative to ASME Section XI requirements for ISI of ASME Class 1 piping, Categories B-F and B-J was implemented. This Risk-Informed Inservice Inspection (RI-ISI) Program was developed in accordance with EPRI Topical Report 112657 Rev. B-A. The RI-ISI application was also consistent with ASME Code Case N-578. NRC approval was granted on February 7, 2002.

The third interval ISI Program does not currently address examination requirements that will result from the implementation of risk-informed technology for the third inspection interval. Seabrook is presently developing a RI-ISI program for examination of ASME Class 1 and Class 2 components. The third interval program will be submitted to the NRC, as a relief request, for approval prior to implementation.

This document also includes inservice augmented examinations required by Seabrook regulatory commitments, 10 CFR 50.55a(g)(6)(ii), industry initiatives and plant original equipment manufacturer (OEM) (e.g. Westinghouse) technical publications. The augmented inservice examinations applicable to Seabrook Station Unit 1 are identified in Section 7.0 of Chapter 2 and summarized in Table 2.3 of Chapter 2.

Where an examination or test required by ASME Section XI has been determined to be impractical or an alternative has been proposed, the basis for this determination has been documented and submitted to the NRC for approval as a request for relief (or a request for alternative) as permitted per 10 CFR 50.55a(a)(3)(i), 10 CFR 50.55a(a)(3)(ii), 10 CFR 50.55a(g)(5)(iii),
10 CFR 50.55a(g)(5)(iv) and 10 CFR 50.55a(g)(6)(i). Relief Requests and Alternative Requests are summarized in a table in section 1.12.4 and the full text of these documents is included in Appendix A.

1.2 Responsibilities

Seabrook, as Owner, has overall responsibility for the conduct of the Inservice Inspection Program to assure compliance with ASME Section XI, including IWA-1400, entitled "Owner's Responsibilities". Engineering has the responsibility for the Inservice Inspection Program, including preparation, revisions, implementation, scheduling, examinations, repairs, and replacements. Engineering also has the responsibility for the preparation, issuance, and revision of the NonDestructive Examination (NDE) procedures and is further responsible for personnel qualification and certifications for this program.

1.3 Applicable Editions and Addenda to ASME Section XI

1.3.1 The Code of Federal Regulations in 10 CFR 50.55a(g)(4)(ii) requires the ISI Program for the Third 10-Year ISI Interval and the Second 10-Year CISI Interval to comply with the ASME Section XI Edition and Addenda, Division 1, approved for use in 10 CFR 50.55a(b)(2) 12 months prior to the start of the interval. The ISI and CISI Intervals began at midnight on August 19, 2010. The ASME Section XI Edition and Addenda that was approved for use 12 months prior to August 19, 2010 was the 2004 Edition. Accordingly, this version of ASME Section XI forms the basis for the Third 10-Year ISI Interval and the Second 10-Year CISI Interval.

1.3.2 As required by 10 CFR 50.55a(b)(2)(xxiv), Seabrook will not implement Appendix VIII, the supplements to Appendix VIII and Appendix I, Article I-3000 of the 2004 Edition of Section XI. The use of these requirements is prohibited by 10 CFR 50.55a(b)(2)(xxiv). Seabrook shall implement requirements specified in the 2001 Edition of ASME Section XI. Seabrook implementation of ASME Section XI, Appendix VIII is included in Chapter 2, Section 6.0.

1.3.3 As permitted by paragraph 10 CFR 50.55a(g)(4)(iv), Seabrook may elect to meet the requirements set forth in editions and addenda of ASME Section XI which become effective subsequent to the 2004 Edition of ASME Section XI. NRC approval is required prior to implementing these later editions or addenda (Reference NRC Regulatory Issue Summary RIS-2004-12). Editions and Addenda of ASME Section XI or ASME Code Cases that are adopted will be identified in the appropriate sections of this inspection program. It is the intent of Seabrook to apply appropriate revisions of ASME Section XI, with NRC approval, which improve the overall quality of Seabrook's inspection program. Those changes that are applied will be identified in this Section of the SIIR.

1.4 Historical ISI and CISI Program Information

1.4.1 ASME Section XI Preservice examinations and tests were performed in accordance with the 1977 Edition with the Summer 1978 Addenda, except for the preservice examinations of ASME Class 2 piping welds, which were performed in accordance with the 1974 Edition with the Summer 1975 Addenda.

1.4.2 The first 10-Year ISI Interval began on August 19, 1990 and ended on August 18, 2000. The applicable ASME Section XI Code of Record was the 1983 Edition with the Summer 1983 Addenda.

1.4.3 The first 10-Year CISI Interval began on August 19, 2000 and ended on August 18, 2010. The applicable ASME Section XI Code of Record was the 1995 Edition with the 1996 Addenda. As required by 10 CFR 50.55a(g)(6)(ii)(B)(1), Seabrook implemented the first period Subsection IWE examinations by September 9, 2001, and these examinations served as the Preservice examinations. As required by 10 CFR 50.55a(g)(6)(ii)(B)(2), Seabrook implemented the required Subsection IWL examinations (based on the number of years of commercial operation) by September 9, 2001, and these examinations served as the Preservice examinations.

1.4.4 The second 10-Year ISI Interval began on August 19, 2000 and ended on August 18, 2010. The applicable ASME Section XI Code of Record was the 1995 Edition with the 1996 Addenda.

1.5 Program Scope and Exclusions

The scope of this ISI Program includes Class 1 components and component supports, Class 2 components and component supports, Class 3 components and component supports, including all associated areas and surfaces as required by ASME Section XI, and the augmented inservice inspection requirements specified in Chapter 2, Section 7.0. In addition, this ISI Program includes Class MC components and component supports and Class CC components.

The following Seabrook Programs are specifically excluded from the scope of this program:

- Snubber Program
- Pump and Valve Test Program
- Containment Pressure Test Program
- Repair and Replacement Program

1.6 Component Classifications and Boundaries

ASME Class 1 systems and components have been classified for inservice inspection using the guidance specified in 10 CFR 50.2, Definitions. Classification of Class 2 and 3 systems and components are specified in Regulatory Guide 1.26, Rev. 3 (Quality Group B and C). Specific code classifications and associated boundaries are depicted on the plant Piping and Instrument Drawings (P&IDs) listed in Table 2.5 of Chapter 2. Typically, systems and components on the P&IDs, which are designated as Safety Class 1, 2, and 3 also correspond to ASME Class 1, 2, and 3, respectively.

The classification of Seabrook primary containment components as Class MC or Class CC for the application of ASME Section XI requirements is based on "Containment Boundary Bases Document", document FP59252, Revision 1. Although the primary containment was originally constructed to several Construction Codes, all of the pressure-retaining portions of the containment are to be considered either Class MC or Class CC and hence are subject to inspection in accordance with ASME Section XI, Subsection IWE or Subsection IWL, respectively. (Reference SECY-96-080, Attachment 6, Part II, NRC response to Public Comment 2.1)

1.7 Technical Specification Commitments

The Technical Specification commitments for the scope of this program are addressed in the following sections:

Section	Subject
3.4.10	Structural Integrity of ASME Code Class 1, 2, and 3 Components
4.0.5	Surveillance Requirements for Inservice Inspection
4.4.10	Reactor Coolant Pump Flywheel Inspection
6.7	Procedures and Programs

1.8 Updated Final Safety Analysis Report (UFSAR) Commitments

The UFSAR commitments for the scope of this program are addressed in the following sections:

Section	Subject
1.8	Conformance to NRC Regulatory Guides
5.2.4	Inservice Inspection of the Reactor Coolant Pressure Boundary
6.6	Inservice Inspection of Class 2 and 3 Components
6.6.8	Augmented Inservice Inspection Requirements

1.9 Quality Assurance Program Commitments

The operational Quality Assurance Program is defined in the FPL Quality Assurance Topical Report (QATR).

1.10 ASME Section XI Code Case Commitments

ASME Section XI Code Cases clarify the intent of the code or provide alternatives to Section XI code requirements. The NRC approves usage of Code Cases and documents provisions to specific Code Case requirements in Regulatory Guide 1.147. The application of Code Cases are further governed by ASME Section XI Paragraph IWA-2440. Code Cases not authorized for use in accordance with Regulatory Guide 1.147, are not implemented unless specifically approved by the NRC in the form of a Relief Request or written correspondence. The following ASME Section XI Code Cases have been incorporated into this manual.

Code Case No.	Title
N-460	Alternative Examination Coverage for Class 1 and Class 2 Welds

N-504-4 Alternative Rules for Repair of Class 1, 2 and 3 Austenitic Stainless Steel Piping

Note: The provisions of Section XI, Nonmandatory Appendix Q, "Weld Overlay Repair of Class 1, 2, and 3 Austenitic Stainless Steel Piping Weldments," must also be met. In addition, the following conditions shall be met: (a) the total laminar flaw area shall not exceed 10% of the weld surface area, and no linear dimension of the laminar flaw area shall exceed the greater of 3 inches or 10% of the pipe circumference; (b) the finished overlay surface shall be 250 micro-in (6.3 micrometers) root mean square or smoother; (c) the surface flatness shall be adequate for ultrasonic examination; and (d) radiography shall not be used to detect planar flaws under or masked by laminar flaws.

N-513-3 Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping

Note: The repair or replacement activity temporarily deferred under the provisions of this Code Case shall be performed during the next scheduled outage.

N-517-1 Quality Assurance Program Requirements for Owners

N-526 Alternate Requirements for Successive Inspections of Class 1 and 2 Vessels

N-528-1 Purchase, Exchange, or Transfer of Material Between Nuclear Plant Sites

Note: The requirements of 10 CFR Part 21 are to be applied to the nuclear plant site supplying the material as well as to the nuclear plant site receiving the material that has been purchased, exchanged, or transferred between sites.

N-532-4 Alternative Requirements to Repair and Replacement Documentation Requirements and Inservice Summary Report Preparation and Submission as Required by IWA-4000 and IWA-6000

N-552 Alternative Methods - Qualification of Nozzle Inside Radius Section from the Outside Surface

Note: To achieve consistency with the 10 CFR 50.55a rule change published September 22, 1999 (64 FR 51370), incorporating Appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems," to Section XI, add the following to the specimen requirements:

"At least 50 percent of the flaws in the demonstration test set must be cracks and the maximum misorientation must be demonstrated with cracks. Flaws in nozzles with bore diameters equal to or less than 4 inches may be notches."

Add to detection criteria, "The number of false calls must not exceed three."

N-566-2 Corrective Action for Leakage Identified at Bolted Connections

N-586-1 Alternative Additional Examination Requirements for Class 1, 2, and 3 Piping, Components, and Supports

N-593 Alternative Examination Requirements for Steam Generator Nozzle to Vessel Welds

Note: Essentially 100 percent (not less than 90 percent) of the examination volume A-B-C-D-E-F-G-H must be inspected.

N-600 Transfer of Welder, Welding Operator, Brazer, and Brazing Operator Qualifications Between Owners

N-613-1 Ultrasonic Examination of Penetration Nozzles in Vessels, Examination Category B-D, Item Nos. B3.10 and B3.90, Reactor Nozzle-to-Vessel Welds, Figs. IWB-2500-7(a), (b), and (c)

N-624 Successive Inspections

N-638-4 Similar and Dissimilar Metal Welding Using Ambient Temperature Machine GTAW Temper Bead Technique

Note: (1) Demonstration for ultrasonic examination of the repaired volume is required using representative samples which contain construction type flaws.

(2) The provisions of 3(e)(2) or 3(e)(3) may only be used when it is impractical to use the interpass temperature measurement methods described in 3(e)(1), such as in situations where the weldment area is inaccessible (e.g., internal bore welding) or when there are extenuating radiological conditions.

N-639 Alternative Calibration Block Material

Note: Chemical ranges of the calibration block may vary from the materials specification if (1) it is within the chemical range of the component specification to be inspected, and (2) the phase and grain shape are maintained in the same ranges produced by the thermal process required by the specification.

N-641 Alternative Pressure-Temperature Relationship and Low Temperature Overpressure Protection System Requirements

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

Note: In place of a UT examination, licensees may perform a visual examination with enhanced magnification that has a resolution sensitivity to detect a 1-mil width wire or crack, utilizing the allowable flaw length criteria of Table IWB-3512-1 with limiting assumptions on the flaw aspect ratio. The provisions of Table IWB-2500-1, Examination Category B-D, continue to apply except that, in place of examination volumes, the surfaces to be examined are the external surfaces shown in the figures applicable to this table, (the external surface is from point M to point N in the figure).

N-649 Alternative Requirements for IWE-5240 Visual Examination

N-651 Ferritic and Dissimilar Metal Welding Using SMAW Temper Bead Technique Without Removing the Weld Bead Crown for the First Layer

N-661-1	Alternative Requirements for Wall Thickness Restoration of Classes 2 and 3 Carbon Steel Piping for Raw Water Service Note: (1) If the cause of the degradation has not been determined, the repair is only acceptable until the next refueling outage. (2) When through-wall repairs are made by welding on surfaces that are wet or exposed to water, the weld overlay repair is only acceptable until the next refueling outage.
N-663	Alternative Requirements for Classes 1 and 2 Surface Examinations
N-665	Alternative Requirements for Beam Angle Measurements Using Refracted Longitudinal Wave Search Units
N-666	Weld Overlay of Class 1, 2, and 3 Socket Welded Connections
N-683	Method for Determining the Maximum Allowable False Calls When Performing Single-Sided Access Performance Demonstrations in Accordance With Appendix VIII, Supplements 4 and 6
N-686-1	Lighting Requirements for Surface Examinations
N-695	Qualification Requirements for Dissimilar Metal Piping Welds
N-696	Qualification Requirements for Appendix VIII Piping Examinations Conducted From the Inside Surface
N-705	Evaluation Criteria for Temporary Acceptance of Degradation in Moderate Energy Class 2 or 3 Vessels and Tanks
N-706-1	Alternative Examination Requirements of Table IWB-2500-1 and Table IWC-2500-1 for PWR Stainless Steel Residual and Regenerative Heat Exchangers
N-712	Class 1 Socket Weld Examinations
N-722	Additional Examinations for PWR Pressure Retaining Welds in Class 1 Components Fabricated With Alloy 600/192/1192
N-729-1	Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds
N-731	Alternative Class 1 System Leakage Test Pressure Requirements
N-733	Mitigation of Flaws in NPS 2 (DN 50) and Smaller Nozzles and Nozzle Partial Penetration Welds in Vessels and Piping by Use of a Mechanical Connection Modification
N-735	Successive Inspection of Class 1 and 2 Piping Welds
N-753	Vision Tests

1.11 ASME Section XI Interpretations

ASME Section XI Interpretations are written replies to inquiries concerning the interpretation of technical aspects of the Code.

ASME Section XI Interpretations are not endorsed by the NRC, and as such, must be applied judiciously. NRC Inspection Manual Part 9900, Technical Guidance, ASME Boiler and Pressure Vessel Code, Sections III & XI, dated 11/12/96, states in part "ASME Code Interpretations are not incorporated into the Code Of Federal Regulations and therefore, the NRC is not bound by these interpretations." Interpretations that provide helpful clarification of ASME Section XI requirements may be included in the Program Plan for information and consistency.

1.12 Relief Requests and Alternative Requests

Alternatives or deviations from ASME Section XI code requirements are permitted per 10 CFR 50.55a(a)(3)(i), (ii), 10 CFR 50.55a(g)(5)(iii), (iv), and 10 CFR 50.55a(g)(6)(i), but only if they have been previously approved by the NRC. These deviations and alternatives are documented in the form of a Relief Request or Alternative Request, which provides a description, basis, and proposed alternative for the request. The Relief Requests and Alternative Requests are listed in Table 1.12-1 below and include the current NRC approval status. Full text versions are contained in Appendix A.

1.12.1 Alternative Requests for Non Approved Code Cases

If it is determined that it would be beneficial to utilize non approved Code Cases (those not approved for use in Regulatory Guide 1.147) which provide alternative requirements to the inspection requirements of ASME Section XI or other alternative inspection requirements, Seabrook will prepare an Alternative Request in accordance with 10 CFR 50.55a(a)(3)(i). ASME publishes Code Cases which explain the intent of Code rules or provide for alternative requirements under special circumstances. Section 1.10 of this document describes the use of approved Code Cases.

1.12.2 Relief Requests for Hardship or Unusual Difficulty

During ISI, there are cases where compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. An example of this is encountering significant radiation exposure during the performance of an examination. If such circumstances are identified, relief requests will be filed in accordance with 10 CFR 50.55a(a)(3)(ii)

1.12.3 Relief Requests for Impractical Requirements

During Inservice Inspection, there are cases where component configuration and/or interferences prohibit coverage of the code required volume or surfaces. In each case where such limitations have been encountered, the details are documented in a relief request. If additional conditions are encountered where the inspection requirements of ASME Section XI as documented in this program manual cannot be met, relief requests will be filed in accordance with 10 CFR 50.55a(g)(5)(iii).

1.12.4 Format

Seabrook Interval 3 Relief Requests and Alternative Requests will be numbered in accordance with the format 3IR-XX and 3AR-XX, respectively, where XX is a sequential number. Each Relief Request and Alternative Request will be formatted in accordance with the Nuclear Energy Institute (NEI) document "Standard Format for Requests Pursuant to 10 CFR 50.55", Revision 1, dated June 7, 2004.

Approval Status

Relief Request	**Subject**	**NRC Status**
3IR-1, Rev.0	Examination Category B-A and B-D, Reactor Vessel Welds	Not Approved[1]
3IR-2, Rev.0	Examination Category B-B and B-D, Pressurizer and Steam Generator Welds	Not Approved[1]
3IR-3, Rev.0	Examination Category C-B, Steam Generator MS Outlet Nozzle Inside Radius Section	Not Approved[1]
3IR-4, Rev.0	Pressurizer Seismic Supports	Not Approved[1]
3IR-5, Rev.0	Use of PDI Ultrasonic Techniques on the RPV Flange-to-Shell Weld	Not Approved[1]
3IR-16, Rev.0	Use an Alternative to the Depth Sizing Requirement (Supplement 10) on RPV Nozzles From the ID	Approved TAC No. ME3623
Alternative Request	**Subject**	**NRC Status**
None		

[1] Relief Request submittal to NRC in 2011 is intended to provide sufficient review and approval time to meet the scheduled Fall 2012 refueling outage.

1.13 Inspection Interval, Periods, and Outages

The 3rd ISI interval will follow ASME Section XI Inspection Program B as provided in Paragraph IWA-2432 and discussed below in Paragraph 1.13.1. The interval is divided into three successive inspection periods as determined by calendar years of plant service. The first, second, and third inspection periods are three (3), four (4), and three (3) years in length respectively, as required by Section XI, Tables IWB-2412-1, IWC-2412-1, IWD-2412-1, IWE-2412-1 and IWF-2410-2 and shown in the table below. Inspection Periods are further divided into refueling outages. The start and end dates for the scheduled three inspection periods occur at midnight on the dates as indicated. The scheduled period dates are tentative and subject to change.

Period	Start	End
1	8-19-10	8-18-13
2	8-19-13	8-18-17
3	8-19-17	8-18-20

1.13.1 Inspection Program B

Unless specific examination deferrals are permitted, examination percentages for each examination category meet the inspection period requirements per Inspection Program B in accordance with ASME Section XI, Tables IWB-2412-1, IWC-2412-1, IWD-2412-1, IWE-2412-1 and IWF-2410-2 as follows:

Period	Minimum Exams Required	Maximum Exams Credited
1	16%	50%
2	50%[1]	75%
3	100%	100%

[1] If the first period completion percentage for any examination category exceeds 34%, at least 16% of the required examinations shall be performed in the second period.

Inspection Program B is not applicable to the Subsection IWL examinations of Class CC Concrete Components. Class CC Components are examined on a 5 year frequency in accordance with IWL-2400.

1.14 Program References

The administrative controls for the Inservice Inspection Program are addressed in the following

Document	Title
MA 6.1	Implementation Procedure for Inservice Inspection of Class 1, 2, and 3 Components and Primary Containment Structures
MA 6.2	ASME Section XI Repair and Replacement Program
ES1807.030	Nondestructive Examination (NDE) Certification Program
ES1802.006	Disposition of Inservice Inspection Anomalies
MNPR	Manuals and Procedures Administration Manual
NARC	Regulatory Compliance Manual (Reporting Defects, Noncompliances, Preparation of Relief Requests, etc.)
NARM	Records Management Manual
STMM	Seabrook Team Management Manual (Plans, Programs, Procedures, etc.)
EE-07-035	Risk Informed Inservice Inspection of Class 2 Main Steam and Feedwater Break Exclusion Region

1.15 Examination Procedures

The inservice inspection program examination requirements are performed and controlled through the use of both Seabrook and vendor NDE procedures. Seabrook procedures are prepared, qualified, issued, implemented, and controlled by Engineering and are maintained as Engineering Department Procedures. Vendor NDE procedures are reviewed, qualified, and approved for use by Seabrook prior to implementation.

1.16 Personnel Qualification and Certification

Personnel performing ASME Section XI NDE examinations are qualified and certified in accordance with ANSI/ASNT CP-189, Standard for Qualification and Certification of Non-destructive Testing Personnel (1995) as required by IWA-2300 and modified by the requirements of Section XI, Division 1 and 10 CFR 50.55a. Qualification and certification of personnel performing examinations for augmented requirements specified in Section 7.0 of Chapter 2 are in accordance with the requirements of each as stipulated. Implementation and control of the qualification and certification activities are within the jurisdiction of Engineering.

1.17 Authorized Nuclear Inservice Inspector

The duties of the Authorized Nuclear Inservice Inspector (ANII) are assigned by Section XI to verify that the responsibilities of the Owner and all mandatory requirements are met as specified in IWA-2110. It is the duty of the Inspector, among others, to perform a detailed review of this ISI Program and subsequent revisions, to verify that the required examinations are being properly performed and recorded.

1.18 Records and Reports

1.18.1 General

Records and reports of ISI activities are developed and maintained in accordance with ASME Section XI, IWA-6000, and should include as applicable, program plans, schedules, examination procedures, examination results, final reports, equipment/personnel certifications, documentation of corrective actions, etc.

1.18.2 Owner's Reports for Inservice Inspection and Repair/Replacement Activities

An Owner's Report for Inservice Inspections, Form NIS-1 or Form OAR-1 (Code Case N-532-4), will be prepared, certified by the Owner, and verified and signed by the ANII upon completion each refueling outage and submitted within 90 days to the enforcement and regulatory authorities in accordance with IWA-6200.

1.18.3 Records Retention

All records associated with ISI and repair/replacement activities will be retained for the duration of the facility operating license in accordance with the Quality Assurance Topical Report (QATR).

1.19 Code of Federal Regulations - Limitations, Modifications and Augmented Examination Requirements

The following mandatory and optional Code of Federal Regulations Limitations, Modifications and Augmented Examination Requirements are being implemented during ISI Interval 3 and CISI Interval 2 at Seabrook. These Limitations, Modifications and Augmented Examination Requirements are included in 10 CFR 50.55a published on January 1, 2010.

1.19.1 As required by 10 CFR 50.55a(b)(2)(viii), Seabrook will examine the concrete containment in accordance with 10 CFR 50.55a(b)(2)(viii)(E) and 10 CFR 50.55a(b)(2)(viii)(F). Implementation of these modifications is included in Chapter 3, Section 2.0.

Note: 10 CFR 50.55a(b)(2)(viii)(G) does not apply to Seabrook because the containment structure is not post-tensioned.

1.19.2 As required by 10 CFR 50.55a(b)(2)(ix), Seabrook will examine the metal containment and the liner of the concrete containment in accordance with 10CFR50.55a(b)(2)(ix)(A), 10CFR50.55a(b)(2)(ix)(B) and 10CFR50.55a(b)(2)(ix)(F) through 10 CFR 50.55a(b)(2)(ix)(I). Implementation of these modifications is included in Chapter 3, Section 1.0.

1.19.3 As required by 10 CFR 50.55a(b)(2)(x), Seabrook will apply ASME NQA-1 and 10CFR50 Appendix B quality assurance requirements to the inservice inspection program. Implementation of these requirements is included in the Quality Assurance Topical Report (QATR).

1.19.4 As required by 10 CFR 50.55a(b)(2)(xii), Seabrook will not perform underwater welding on irradiated material per IWA-4660 requirements. Implementation of this limitation is addressed in Seabrook Administrative Procedure MA 6.2.

1.19.5 As allowed by 10 CFR 50.55a(b)(2)(xiv), for Appendix VIII Qualified Personnel, Seabrook will implement the annual practice requirements in VII-4240 of ASME Section XI, Appendix VII in place of the 8 hours of annual hands-on training (when deemed appropriate). When utilizing this option, the annual practice requirements will be performed on material or welds that contain cracks, or by analyzing prerecorded data from material or welds that contain cracks. All training will be completed no earlier than 6 months prior to performing ultrasonic examinations. The implementation of ASME Section XI, Appendix VIII requirements is addressed in Chapter 2, Section 6.0 of this document.

1.19.6 As allowed by 10 CFR 50.55a(b)(2)(xv), Seabrook will implement the optional Appendix VIII specimen set and qualification provisions in paragraphs (b)(2)(xv)(A) to (b)(2)(xv)(M). The implementation of ASME Section XI, Appendix VIII requirements is addressed in Chapter 2, Section 6.0 of this document.

Note that the alternative requirements of Code Case N-695 will be utilized in lieu of those in Appendix VIII, Supplement 10. In addition, the alternative requirements of Code Case N-696 will be utilized in lieu of those in Appendix VIII, Supplements 2, 3 and 10.

1.19.7 As required by 10 CFR 50.55a(b)(2)(xvi)(A) and 10 CFR 50.55a(b)(2)(xvi)(B), Seabrook examinations performed from one side of a ferritic vessel weld and Seabrook examinations performed from one side of a ferritic or stainless steel pipe will be conducted with equipment, procedures, and personnel that have demonstrated proficiency with single side examinations in accordance with ASME Section XI, Appendix VIII and 10CFR50.55a(b)(2)(xv) requirements. The implementation of ASME Section XI, Appendix VIII requirements is addressed in Chapter 2, Section 6.0 of this document.

1.19.8 As required by 10 CFR 50.55a(b)(2)(xviii)(A), Level I and II nondestructive examination personnel at Seabrook will be recertified on a 3-year interval in lieu of the 5-year interval specified in IWA-2314(a) and IWA-2314(b) of the 2004 Edition of ASME Section XI. The certification of nondestructive examination personnel is addressed in procedure ES1807.030.

1.19.9 As required by 10 CFR 50.55a(b)(2)(xviii)(B), paragraph IWA-2316 of the 2004 Edition of ASME Section XI will only be used to qualify personnel that observe for leakage during system leakage and hydrostatic tests conducted in accordance with IWA-5211(a) and (b). The qualification and certification of nondestructive examination personnel is addressed in procedure ES1807.030.

1.19.10 As required by 10 CFR 50.55a(b)(2)(xviii)(C), when qualifying visual examination personnel for VT-3 visual examinations under paragraph IWA-2317 of the 2004 Edition, the proficiency of the training will be demonstrated by administering an initial qualification examination and administering subsequent examinations on a 3-year interval. The qualification and certification of nondestructive examination personnel is addressed in procedure ES1807.030.

1.19.11 As required by 10 CFR 50.55a(b)(2)(xix), Seabrook will apply the rules in IWA-2240 of ASME Section XI, 1997 Addenda in lieu of the IWA-2240 requirements in ASME Section XI, 2004 Edition for the substitution of alternative examination methods.

1.19.12 As required by 10 CFR 50.55a(b)(2)(xx)(B), the NDE provision in IWA-4540(a)(2) of the 2002 Addenda of ASME Section XI will be applied when performing system leakage tests after repair and replacement activities performed by welding or brazing on a pressure retaining boundary using the 2004 Edition of ASME Section XI. Repair Replacement activities are addressed in Seabrook Administrative Procedure MA 6.2.

1.19.13 As required by 10 CFR 50.55a(b)(2)(xxi)(A), the provisions of Table IWB-2500-1, Examination Category B-D, Full Penetration Welded Nozzles in Vessels, Items Nos. B3.120 and B3.140 of Inspection Program B in the 1998 Edition will be applied by Seabrook. As allowed by 10 CFR 50.55a (b)(2)(xxi)(A), a visual examination with enhanced magnification that has a resolution sensitivity to detect a 1-mil width wire or crack, utilizing the allowable flaw length criteria in Table IWB-3512-1, 2004 Edition, with a limiting assumption on the flaw aspect ratio (i.e., a/l = 0.5), may be performed by Seabrook in place of an ultrasonic examination. Examination of Category B-D components is addressed in Chapter 2, Section 1.4 of this document.

1.19.14 As required by 10 CFR 50.55a(b)(2)(xxiii), Seabrook will not implement the provision in IWA-4461.4.2 eliminating mechanical processing of thermally cut surfaces. The use of this provision is prohibited by 10 CFR 50.55a(b)(2)(xxiii). Repair Replacement activities are addressed in Seabrook Administrative Procedure MA 6.2.

1.19.15 As required by 10 CFR 50.55a(b)(2)(xxiv), Seabrook will not implement Appendix VIII, the supplements to Appendix VIII and Appendix I, Article I-3000 in the 2002 Addenda through the 2004 Edition. The use of these requirements is prohibited by 10 CFR 50.55a(b)(2)(xxiv). In lieu of these requirements, Seabrook will implement the rules in the 2001 Edition of ASME Section XI. The implementation of ASME Section XI, Appendix VIII requirements is addressed in Chapter 2, Section 6.0 of this document

1.19.16 As required by 10 CFR 50.55a(b)(2)(xxv), Seabrook will not implement the requirements of IWA-4340 for the mitigation of defects by modification. The use of this provision is prohibited by 10 CFR 50.55a (b)(2)(xxv). Repair Replacement activities are addressed in Seabrook Administrative Procedure MA 6.2.

1.19.17 As required by 10 CFR 50.55a(b)(2)(xxvi), Seabrook will apply the repair and replacement activity provisions in IWA-4540(c) of the 1998 Edition of ASME Section XI for pressure testing of Class 1, 2, and 3 mechanical joints. Repair Replacement activities are addressed in Seabrook Administrative Procedure MA 6.2.

1.19.18 As required by 10 CFR 50.55a(b)(2)(xxvii), insulation will be removed from 17-4 PH or 410 stainless steel studs or bolts aged at a temperature below 1100°F, from those having a Rockwell Method C hardness value above 30, and from A-2196 stainless steel studs or bolts preloaded to 100,000 pounds per square inch or higher when performing visual examinations in accordance with IWA-5242. Insulation removal during ASME Section XI Pressure Testing is addressed in procedure ES1807.025.

1.19.19 As allowed by 10 CFR 50.55a(b)(3)(v), the examination and testing of snubbers, including the examination of non-integral attachment hardware will be performed per the 2004 Edition of the OM Code, Subsection ISTD in lieu of the examination and testing requirements for snubbers in ASME Section XI, IWF-5200(a) and (b) and IWF-5300(a) and (b). Snubber examination and testing is addressed in procedure EX1805.01.

1.19.20 As required by 10 CFR 50.55a(g)(6)(ii)(D), Seabrook will implement the augmented examination requirements in ASME Code Case N-729-1. Augmented examinations are addressed in Chapter 2, Section 7.0 of this document.

1.19.21 As required by 10 CFR 50.55a(g)(6)(ii)(E), Seabrook will implement the augmented examination requirements in ASME Code Case N-722. Augmented examinations are addressed in Chapter 2, Section 7.0 of this document.

2.0 SUMMARY OF CHANGES

Revision 13:

This revision reflects the updated ISI Program Plan and Schedule for the 3rd 10-Yr. Interval in accordance with ASME Section XI, 2004 Edition as modified by 10 CFR 50.55a requirements. In addition to updating the requirements included in former revisions of SIIR, this document now includes the requirements for Containment Inservice Inspection (CISI) per Section XI, Subsections IWE and IWL for the 2nd 10-Year Interval; previously these requirements were included in document FP 59253, Primary Containment Inservice Inspection Plan, which addressed the 1st 10-Year Interval for CISI.

1.0 ASME CLASS 1 EXEMPTIONS AND REQUIREMENTS

ASME Class 1 component exemptions and applicable examination category requirements are summarized below with the corresponding relief requests, code cases, and augmented requirements referenced.

1.1 Class 1 Component Exemptions

The following components[1] or portions of components are exempted from the volumetric and surface examination requirements of IWB-2500, in accordance with IWB-1220:

(a) components that are connected to the reactor coolant system and part of the reactor coolant pressure boundary, and that are of such a size and shape so that upon postulated rupture the resulting flow of coolant from the reactor coolant system under normal plant operating conditions is within the capacity of makeup systems which are operable from on-site emergency power. The emergency core cooling systems are excluded from the calculation of makeup capacity.

(b)(1) components and piping segments of NPS 1 and smaller, except for steam generator tubing;

(2) components and piping segments which have one inlet and one outlet, both of which are NPS 1 and smaller;

(3) components[2] and piping segments which have multiple inlets or multiple outlets whose cumulative pipe cross-sectional area does not exceed the cross-sectional area defined by the OD of NPS 1 pipe.

(c) reactor vessel head connections and associated piping, NPS 2 and smaller, made inaccessible by control rod drive penetrations.

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

Footnotes:

[1] The exemptions from examination in IWC-1220 may be applied to those components permitted to be Class 2 in lieu of Class 1 by the regulatory authority having jurisdiction at the plant site.

[2] For heat exchangers, the shell side and tube side may be considered separate components.

1.2 Examination Category B-A Requirements

Examination Category B-A requires the reactor pressure vessel, shell, head, shell to flange, and head to flange welds be examined as noted below. The incorporated relief requests are referenced as applicable.

Item No.	Items Required to be Examined	Method	Reference
B1.11	All Reactor Vessel Circumferential Shell Welds	Volumetric	3IR-1
B1.12	All Reactor Vessel Longitudinal Shell Welds	Volumetric	
B1.21	Accessible Length of All Reactor Vessel Circumferential Head Welds	Volumetric	3IR-1
B1.22	Accessible Length of All Reactor Vessel Meridional Head Welds	Volumetric	
B1.30	All of the Reactor Vessel Shell to Flange Weld	Volumetric	3IR-5
B1.40	All of the Reactor Vessel Head to Flange Weld	Volumetric and Surface	3IR-1

1.3 Examination Category B-B Requirements

Examination Category B-B requires the Pressurizer circumferential shell to head weld at both ends, 1 foot of one longitudinal weld per head intersecting the Pressurizer shell to head welds, and one Steam Generator tubesheet-to-head weld be examined as noted below. The incorporated relief requests are referenced as applicable.

Item No.	Items Required to be Examined	Method	Reference
B2.11	Pressurizer Circumferential Shell to Head Welds	Volumetric	3IR-2
B2.12	Pressurizer Longitudinal Weld Per Head	Volumetric	
B2.40	Steam Generator Tubesheet-to-Head Weld	Volumetric	3IR-2

1.4 Examination Category B-D, Inspection Program B Requirements

Examination Category B-D requires the Reactor Pressure Vessel full penetration nozzle to vessel welds and the nozzle inside radius sections be examined as noted below. Examination Category B-D also requires the Pressurizer and Steam Generator full penetration nozzle to vessel welds be examined as noted below. The examination of the Pressurizer and Steam Generator nozzle inside radius sections is required per 10 CFR 50.55a(b)(2)(xxi)(A) and must be performed in accordance with the 1998 Edition of ASME Section XI. A visual examination with magnification that has a resolution sensitivity to detect a 1-mil width wire or crack, utilizing the allowable flaw length criteria in Table IWB–3512–1, 2004 Edition, with a limiting assumption on the flaw aspect ratio (i.e., a/l=0.5), may be performed instead of an ultrasonic examination. The incorporated relief requests and Code Cases are referenced as applicable. .

Item No.	Items Required to be Examined	Method	Reference
B3.90	All Reactor Vessel Nozzle to Vessel Welds	Volumetric	3IR-1, 3IR-16 N-613-1
B3.100	All Reactor Vessel Nozzle Inside Radius Sections	Volumetric	N-648-1
B3.110	All Pressurizer Nozzle to Vessel Welds	Volumetric	3IR-2
B3.120	All Pressurizer Nozzle Inside Radius Sections	Volumetric	
B3.130	All Steam Generator Nozzle to Vessel Welds	Volumetric	3IR-2
B3.140	All Steam Generator Nozzle Inside Radius Sections	Volumetric	

1.5 Examination Category B-F Requirements

Examination Category B-F requires pressure retaining dissimilar metal welds in vessel nozzles be examined as indicated below.

Item No.	Items Required to be Examined	Method	Reference
B5.10	All Reactor Vessel Nozzle-to-Safe End Butt Welds (NPS 4 or Larger)	Volumetric and Surface	
B5.70	All Steam Generator Nozzle-to-Safe End Butt Welds (NPS 4 or Larger)	Volumetric and Surface	

1.6 Examination Category B-G-1 Requirements

Examination Category B-G-1 requires pressure retaining bolting larger that 2 inch for the Reactor Vessel and Class 1 pumps to be examined as indicated below.

Item No.	Items Required to be Examined	Method	Reference
B6.10	All Reactor Vessel Closure Head Nuts (Greater Than 2" Diameter)	VT-1	
B6.20	All Reactor Vessel Closure Head Studs in Place or When Removed (Greater Than 2" Diameter)	Volumetric Or Surface	
B6.40	All Reactor Vessel Threads in Flange (Greater Than 2" Diameter)	Volumetric	
B6.50	All Reactor Vessel Closure Washers and Bushings (Greater Than 2" Diameter)	VT-1	
B6.180	All Pump Bolts and Studs (Greater Than 2" Diameter) for Pumps Selected Under Category B-L-2	Volumetric or Surface	
B6.190	Pump Flange Surface When Connection is Disassembled (For Bolting Greater Than 2" Diameter) for Pumps Selected Under Category B-L-2	VT-1	

1.7 Examination Category B-G-2 Requirements

Examination Category B-G-2 requires pressure retaining bolting 2 inch and less on the Pressurizer, Steam Generators, piping, pump casings, and valve bodies, to be examined as indicated below.

Item No.	Items Required to be Examined	Method	Reference
B7.20	All Pressurizer Bolts, Studs, and Nuts (2" Diameter and Less)	VT-1	
B7.30	All Steam Generator Bolts, Studs, and Nuts for B-B Steam Generator Selected for Examination (2" Diameter and Less)	VT-1	
B7.50	Bolts, Studs, and Nuts for Piping (2" Diameter and Less)	VT-1	
B7.60	Bolts, Studs, and Nuts for all B-L-2 Pump Casings Selected for Examination (2" Diameter and Less)	VT-1	
B7.70	Bolts, Studs, and Nuts for all B-M-2 Valve Bodies Selected for Examination (2" Diameter and Less)	VT-1	

1.8 Examination Category B-J Requirements

Examination Category B-J requires pressure retaining bolting larger that 2 inch for the Reactor Vessel and Class 1 pumps to be examined as indicated below.

Item No.	Items Required to be Examined	Method	Reference
B9.11	Circumferential Piping Welds (NPS 4 or Larger)	Volumetric and Surface	
B9.21	Circumferential Piping Welds Other Than PWR High Pressure Safety Injection Systems (< 4 NPS)	Surface	
B9.22	Circumferential Piping Welds of PWR High Pressure Safety Injection Systems (< 4 NPS)	Volumetric	
B9.31	Branch Pipe Connection Welds	Volumetric and Surface	
B9.32	Branch Pipe Connection Welds (< 4 NPS)	Surface	
B9.40	Socket Welds	Surface	

1.9 Examination Category B-K Requirements

Examination Category B-K requires welded attachments for vessels, piping, pumps, and valves to be examined as indicated below.

Item No.	Items Required to be Examined	Method	Reference
B10.10	Each Vessel Welded Attachment and One Vessel Welded Attachment of One Vessel Per Each Multiple Vessel Group Associated with Component Supports	Surface	

1.10 Examination Category B-L-2 Requirements

Examination Category B-L-2 requires pump casing internal surfaces to be examined as indicated below. See Table 2.6 for identification of the pump groups.

Item No.	Items Required to be Examined	Method	Reference
B12.20	One Pump Casing Internal Surface per Group When Disassembled for Maintenance, Repair or Volumetric Examination	VT-3	

1.11 Examination Category B-M-2 Requirements

Examination Category B-M-2 requires valve body internal surfaces to be examined as indicated below. See Table 2.6 for identification of the valve groups.

Item No.	Items Required to be Examined	Method	Reference
B12.50	One Valve Body Internal Surface per Group Exceeding NPS 4 When Disassembled for Maintenance, Repair or Volumetric Examination	VT-3	

1.12 Examination Category B-N-1 Requirements

Examination Category B-N-1 requires examination of the Reactor Vessel accessible interior areas after removal of the components each inspection period during a normal refueling outage as indicated below.

Item No.	Items Required to be Examined	Method	Reference
B13.10	Reactor Vessel Accessible Interior Areas Above and Below the Core after Removal of Components During Normal Refueling Outages	VT-3	

1.13 Examination Category B-N-2 Requirements

Examination Category B-N-2 requires examination of the Reactor Vessel accessible interior attachment welds beyond the beltline region as indicated below.

Item No.	Items Required to be Examined	Method	Reference
B13.60	Reactor Vessel Accessible Interior Attachment Welds Beyond the Beltline Region	VT-3	

1.14 Examination Category B-N-3 Requirements

Examination Category B-N-3 requires examination of the Reactor Vessel accessible core support structure surfaces as indicated below.

Item No.	Items Required to be Examined	Method	Reference
B13.70	Reactor Vessel Accessible Core Support Structure Surfaces	VT-3	

1.15 Examination Category B-O Requirements

Examination Category B-O requires examination of the pressure retaining welds in the Reactor Vessel control rod drive and in-core instrument housings as indicated below.

Item No.	Items Required to be Examined	Method	Reference
B14.20	10% of the Reactor Vessel Peripheral Control Rod Drive Housing Welds	Volumetric or Surface	

1.16 Examination Category B-P Requirements

Examination Category B-P requires examination of Class 1 pressure retaining components as indicated below.

Item No.	Items Required to be Examined	Method	Reference
B15.10	Pressure Retaining Components	VT-2	

2.0 ASME CLASS 2 EXEMPTIONS AND REQUIREMENTS

ASME Class 2 component exemptions and applicable examination category requirements are summarized below with the corresponding relief requests, code cases, and augmented requirements referenced.

2.1 Class 2 Component Exemptions

The following components **within** RHR, ECC, and CHR Systems or portions of systems[1] are exempted from the volumetric and surface examination requirements of IWC-2500, in accordance with IWC-1221 and IWC-1223:

(a) For systems, except high pressure safety injection systems in pressurized water reactor plants [IWC-1221]:

(1) components and piping segments NPS 4 and smaller

(2) components and piping segments which have one inlet and one outlet, both of which are NPS4 and smaller [utilized for Seabrook Excess Letdown Heat Exchanger, E-3 and Letdown Heat Exchanger, E-4 (Tube Side)]

(3) components[2] and piping segments which have multiple inlets or multiple outlets whose cumulative pipe cross-sectional area does not exceed the cross-sectional area defined by the OD of NPS 4 pipe. [utilized for Seabrook Regenerative Heat Exchanger, E-2]

(b) For high pressure safety injection systems in pressurized water reactor plants [IWC-1221]:

(1) components and piping segments NPS 1½ and smaller

(2) components and piping segments which have one inlet and one outlet, both of which are NPS 1½ and smaller

(3) components[2] and piping segments which have multiple inlets or multiple outlets whose cumulative pipe cross-sectional area does not exceed the cross-sectional area defined by the OD of NPS 1½ pipe.

(c) Vessels, piping, pumps, valves, other components, and component connections of any size in statically pressurized, passive (i.e. no pumps) safety injection system of pressurized water reactor plants [IWC-1221].

(d) Piping and other components of any size beyond the last shutoff valve in open ended portions of systems that do not contain water during normal plant operating conditions [IWC-1221].

(e) Welds or portions of welds that are inaccessible due to being encased in concrete, buried underground, located inside a penetration, or encapsulated by guard pipe [IWC-1223].

The following components within systems or portions of systems **other than** RHR, ECC, and CHR Systems[1] are exempted from the volumetric and surface examination requirements of IWC-2500, in accordance with IWC-1222 and IWC-1223:

(a) For systems, except auxiliary feedwater systems in pressurized water reactor plants [IWC-1222]:

(1) components and piping segments NPS 4 and smaller

(2) components and piping segments which have one inlet and one outlet, both of which are NPS 4 and smaller

(3) components[2] and piping segments which have multiple inlets or multiple outlets whose cumulative pipe cross-sectional area does not exceed the cross-sectional area defined by the OD of NPS 4 pipe.

(b) For auxiliary feedwater systems in pressurized water reactor plants [IWC-1222]:

(1) components and piping segments NPS 1½ and smaller

(2) components and piping segments which have one inlet and one outlet, both of which are NPS 1½ and smaller

(3) components[2] and piping segments which have multiple inlets or multiple outlets whose cumulative pipe cross-sectional area does not exceed the cross-sectional area defined by the OD of NPS 1½ pipe.

(c) Vessels, piping, pumps, valves, other components, and component connections of any size in systems or portions of systems that operate (when the system function is required) at a pressure equal to or less than 275 psig and at a temperature equal to or less than 200°F [IWC-1222].

(d) Piping and other components of any size beyond the last shutoff valve in open ended portions of systems that do not contain water during normal plant operating conditions [IWC-1222].

(e) Welds or portions of welds that are inaccessible due to being encased in concrete, buried underground, located inside a penetration, or encapsulated by guard pipe [IWC-1223].

Footnotes:

[1] RHR, ECC, and CHR systems are the Residual Heat Removal, Emergency Core Cooling, and Containment Heat Removal Systems, respectively.
[2] For heat exchangers, the shell side and tube side may be considered separate components.
[3] Statically pressurized, passive safety injection systems of pressurized water reactor plants are typically called: (a) accumulator tank and associated system, (b) safety injection tank and associated system, (c) core flooding tank and associated system

In addition to the exemptions of IWC-1221, IWC-1222 and IWC-1223, Class 2 piping may be exempted from periodic system pressure (per Category C-H and IWC-5000) in accordance with IWA-5110(c):

> Piping that penetrates a containment vessel is exempt from the periodic system pressure test when the piping and isolation valves perform a containment function and the balance of the piping system is outside the scope of this Division.

2.2 Examination Category C-A Requirements

Examination Category C-A requires examination of the pressure retaining shell circumferential welds, head circumferential welds and the tubesheet-to-shell welds in Class 2 pressure vessels as indicated below. See Table 2.6 for identification of the vessel groups. The incorporated Code Cases are referenced as applicable.

Item No.	Items Required to be Examined	Method	Reference
C1.10	Pressure Vessel Shell Circumferential Welds (One Vessel per Group)	Volumetric	N-706-1
C1.20	Pressure Vessel Head Circumferential Welds (One Vessel per Group)	Volumetric	N-706-1
C1.30	Pressure Vessel Tube Sheet-to-Shell Welds (One Vessel per Group)	Volumetric	

2.3 Examination Category C-B Requirements

Examination Category C-B requires examination of the pressure retaining nozzles in vessels as indicated below. See Table 2.6 for identification of the vessel groups. The incorporated Code Cases or Relief Requests are referenced as applicable.

Item No.	Items Required to be Examined	Method	Reference
C2.21	All Vessel Nozzle to Shell (or Head) Welds in Vessels > ½ " Thickness Without Reinforcing Plate at Terminal Ends in C-F Selected Piping Runs (One Vessel per Group)	Volumetric and Surface	
C2.22	All Vessel Nozzle Inside Radius Sections in Vessels > ½ " Thickness Without Reinforcing Plate at Terminal Ends in C-F Selected Piping Runs[1] (One Vessel per Group)	Volumetric	3IR-3
C2.31	All Vessel Nozzle to Shell Welds in Vessels > ½ " Thickness With Reinforcing Plate at Terminal Ends in C-F Selected Piping Runs (One Vessel per Group)	Surface	N-706-1
C2.33	All Vessel Nozzle to Shell (or Head) Welds in Vessels >½ " Thickness With Reinforcing Plate at Terminal Ends in C-F Selected Piping Runs When Inside of Vessel is Inaccessible (One Vessel per Group)	VT-2	

Footnotes:

[1] Applies to nozzles greater than NPS 12 per Figure IWC-2500-4

2.4 Examination Category C-C Requirements

Examination Category C-C requires welded attachments for vessels, piping, pumps, and valves to be examined as indicated below.

Item No.	Items Required to be Examined	Method	Reference
C3.10	Each Vessel Welded Attachment (Only One Vessel Welded Attachment within a Multiple Vessel Group Associated with the Vessel Component Supports)	Surface	
C3.20	10% of the Piping Welded Attachments Associated with Component Supports Selected for Examination	Surface	

2.5 Examination Category C-F-1 Requirements

Examination Category C-F-1 requires examination of pressure retaining welds in austenitic stainless steel or high alloy piping as indicated below.

Item No.	Items Required to be Examined	Method	Reference
C5.11	Circumferential Welds in Piping ≥ ⅜ in. Nominal Wall Thickness for Piping > NPS 4	Volumetric and Surface	
C5.21	Circumferential Welds in Piping > $^1/_5$ in. Nominal Wall Thickness for Piping ≥ NPS 2 and ≤ NPS 4	Volumetric and Surface	
C5.30	Socket Welds	Surface	
C5.41	Circumferential Welds in Pipe Branch Connections of Branch Piping ≥ NPS 2	Surface	

2.6 Examination Category C-F-2 Requirements

Examination Category C-F-2 requires examination of pressure retaining welds in carbon steel or low alloy steel piping. Welds within this Code Category are included in the Risk Informed Break Exclusion Region (RI-BER) analysis (Ref. EE-07-035). ASME Code requirements for this category are met by performing ≥ 7.5% of the population and performing both volumetric and surface examination.

Item No.	Items Required to be Examined	Method	Reference
RI-BER	Circumferential Welds in Piping	Volumetric and Surface	Engineering Evaluation EE-07-035

2.7 Examination Category C-H Requirements

Examination Category C-H requires examination of Class 2 pressure retaining components as indicated below.

Item No.	Items Required to be Examined	Method	Reference
C7.10	Pressure Retaining Components	VT-2	

3.0 ASME CLASS 3 EXEMPTIONS AND REQUIREMENTS

ASME Class 3 component exemptions and applicable examination category requirements are summarized below with the corresponding relief requests, code cases, and augmented requirements referenced.

3.1 Class 3 Component Exemptions

The following components or parts of components are exempted from the VT-1 visual examination requirements of IWD-2500, in accordance with IWD-1220(a) through (e):

(a) components and piping segments NPS 4 (DN100) and smaller

(b) components and piping segments which have one inlet and one outlet, both of which are NPS 4 (DN100) and smaller

(c) components[1] and piping segments which have multiple inlets or multiple outlets whose cumulative pipe cross-sectional area does not exceed the cross-sectional area defined by the OD of NPS 4 (DN100) pipe.

(d) components that operate at a pressure of 275 psig (1900 kPa) or less and at a temperature of 200°F (95°C) or less in systems (or portions of systems) whose function is not required in support of reactor residual heat removal, containment heat removal, and emergency core cooling;

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

[1] For heat exchangers, the shell side and tube side may be considered separate components.

3.2 Examination Category D-A Requirements

Examination Category D-A requires examination of welded attachments most subject to corrosion and associated with component supports for vessels, piping, pumps, and valves as indicated below.

Item No.	Items Required to be Examined	Method	Reference
D1.10 D1.20 D1.30 D1.40	10% of the Welded Attachments Most Subject to Corrosion Associated with Component Supports	VT-1	

3.3 Examination Category D-B Requirements

Examination Category D-B requires system leakage tests of all pressure retaining components as indicated below. The system leakage tests shall be conducted once each inspection period.

Item No.	Items Required to be Examined	Method	Reference
D2.10	Pressure Retaining Components-System Leakage Test	VT-2	

4.0 ASME CLASS 1, 2, 3, and MC COMPONENT SUPPORT EXEMPTIONS AND REQUIREMENTS

ASME Class 1, 2, 3, and MC component support exemptions and applicable examination category requirements are summarized below. Note that the term "component support" includes both supports for components such as vessels, pumps, etc., and supports for piping, which are treated separately for selection purposes as discussed below in Paragraph 4.2. Also note that the Seabrook Station design does not include any Class MC component supports.

4.1 ASME Class 1, 2, 3, and MC Component Support Exemptions

Supports exempt from the examination requirements of IWF-2000 are those connected to piping and other items exempted from volumetric, surface, or VT-1 or VT-3 visual examination by IWB-1220, IWC-1220, IWD-1220, and IWE-1220. In addition, portions of supports that are inaccessible by being encased in concrete, buried underground, or encapsulated by guard pipe are also exempt from the examination requirements of IWF-2000, in accordance with IWF-1230.

4.2 ASME Class 1, 2, and 3 Component Support Selections

The supports to be selected for examination are those not exempted by IWF-1230; the selection shall be in accordance with IWF-2510 and Table IWF-2500-1.

4.3 Examination Category F-A Requirements

Examination Category F-A requires Class 1, 2, and 3 piping supports and supports of Class 1, 2, 3 and MC components to be examined as follows

Item No.	Items Required to be Examined	Method	Reference
F1.10	25% of the Class 1 Supports for the nonexempt Class 1 piping	VT-3	
F1.20	15% of the Class 2 Supports for the nonexempt Class 2 piping	VT-3	
F1.30	10% of the Class 3 Supports for the nonexempt Class 3 piping	VT-3	
F1.40	100% of the Class 1, 2, 3, and MC Supports (other than piping) for the components being examined	VT-3	3IR-4

Note: Snubbers and their attachments (bolting, pins, and clamps) are examined and tested under a separate program in accordance with the Technical Requirements Manual. Welded attachments associated with snubbers and other supports are examined in accordance with Examination Categories B-K, C-C, and D-A.

5.0 ASME CLASS 1, 2, AND 3 ACCEPTANCE STANDARDS

5.1 ASME Class 1 Acceptance Standards

The following acceptance standards are applicable to Class 1 Components:

Exam Category	Examination Area	Acceptance Standards
B-A	Pressure Retaining Welds in Reactor Vessel	IWB-3510
B-B	Pressure Retaining Welds in Vessels Other Than Reactor Vessels	IWB-3510
B-D	Full Penetration Welded Nozzles in Vessels	IWB-3512
B-F	Pressure Retaining Dissimilar Metal Welds in Vessel Nozzles	IWB-3514
B-G-1	Pressure Retaining Bolting, Greater Than 2" in Diameter	IWB-3515 IWB-3517
B-G-2	Pressure Retaining Bolting, 2 in. and Less in Diameter	IWB-3517
B-J	Pressure Retaining Welds in Piping	IWB-3514
B-K	Welded Attachments for Vessels, Piping, Pumps, and Valves	IWB-3516
B-L-2	Pump Casings	IWB-3519
B-M-2	Valve Bodies	IWB-3519
B-N-1	Interior of Reactor Vessel	IWB-3520
B-N-2	Welded Core Support Structures and Interior Attachments to Reactor Vessels	IWB-3520
B-N-3	Removable Core Support Structures	IWB-3520
B-O	Pressure Retaining Welds in Control Rod Housings	IWB-3523
B-P	All Pressure Retaining Components	IWB-3522

5.2 ASME Class 2 Acceptance Standards

The following acceptance standards are applicable to Class 2 Components:

Exam Category	Examination Area	Acceptance Standards
C-A	Pressure Retaining Welds in Pressure Vessels	IWC-3510
C-B	Pressure Retaining Nozzle Welds in Vessels	IWC-3511
C-C	Welded Attachments for Vessels, Piping, Pumps, and Valves	IWC-3512
C-F-1	Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping	IWC-3514
C-F-2	Pressure Retaining Welds in Carbon Steel or Low Alloy Steel Piping	IWC-3514
C-H	All Pressure Retaining Components	IWC-3516

5.3 ASME Class 3 Acceptance Standards

The following acceptance standards are applicable to Class 3 Components:

Exam Category	Examination Area	Acceptance Standards
D-A	Welded Attachments for Vessels, Piping, Pumps, and Valves	IWD-3000
D-B	All Pressure Retaining Components	IWD-3000

5.4 ASME Class 1, 2, 3 and MC Component Support Acceptance Standards

The following acceptance standards are applicable to Class 1, 2, 3 and MC Component Supports:

Exam Category	Examination Area	Acceptance Standards
F-A	Component Supports	IWF-3410

6.0 IMPLEMENTATION OF ASME SECTION XI, APPENDIX VIII

6.1 Program Basis

10 CFR 50.55a, as amended and published in the Federal Register on September 22, 1999, Volume 64, Number 183 requiring expedited implementation of Appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems". The effective date for the expedited implementation was November 22, 1999.

6.2 Effective Code

Seabrook shall implement Appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems" in accordance with ASME Section XI, 2001 Edition for the 3rd Inspection Interval at Seabrook Station 1.

6.3 Implementation Schedule

Seabrook has implemented Appendix VIII in accordance with the following schedule as defined in 10 CFR 50.55a:

SUPPLEMENT	QUALIFICATION REQUIREMENTS	IMPLEMENTATION DATE
1	Evaluating Electronic Characteristics of Ultrasonic Systems	May 22, 2000
2	Wrought Austenitic Piping Welds	May 22, 2000
3	Ferritic Piping Welds	May 22, 2000
4	Clad/Base Metal Interface of Reactor Vessel	November 22, 2000
5	Nozzle Inside Radius Section	November 22, 2002
6	Reactor Vessel Welds Other Than Clad/Base Metal Interface	November 22, 2000
7	Nozzle-to-Vessel Welds	November 22, 2002
8	Bolts and Studs	May 22, 2000
9	Cast Austenitic Piping (In Course of Preparation)	N/A
10	Dissimilar Metal Welds	November 22, 2002
11	Full Structural Overlaid Wrought Austenitic Piping Welds	November 22, 2001
12	Coordinated Implementation of Selected Aspects of Supplements 2, 3, 10 and 11	November 22, 2002
13	Coordinated Implementation of Selected Aspects of Supplements 4, 5, 6 and 7	November 22, 2002
14	Supplement 14: Qualification Requirements for Coordinated Implementation of Supplements 10, 2, and 3 for Piping Examinations Performed from the Inside Surface	November 22, 2002

6.4 Performance Demonstration Program

Seabrook will utilize personnel qualified through the Performance Demonstration Initiative (PDI) Program. PDI is an organization comprised of all the US nuclear utilities formed to provide an efficient, cost effective and technically sound implementation of Appendix VIII performance demonstration requirements.

6.5 Performance Demonstration Program Administrator

Seabrook will utilize the EPRI NDE Center as the Performance Demonstration Administrator.

Supplement 1: Evaluating Electronic Characteristics of Ultrasonic Systems

This Supplement defines the steps necessary to interchange the pulsars and/or receivers in an ultrasonic examination system without the need for requalification. The PDI Program does not support this activity, but PDI will supply Seabrook with technical guidance as required on a case-by-case basis.

Supplement 2: Qualification Requirements for Wrought Austenitic Piping Welds

The PDI Program is in full compliance with Supplement 2 as modified by 10 CFR 50.55a for examinations conducted from outside the piping. The PDI Program does not address examinations conducted from inside the pipe except for RPV nozzle-to-pipe and nozzle-to-safe end welds. These examinations are included in Supplement 14, which is described later. Welds containing corrosion-resistant cladding (CRC) that is part of the pressure-retaining boundary, such as that typically applied to mitigate cracking are excluded. A recent Code inquiry indicates that these welds should be examined in accordance with Appendix III until qualification requirements are developed.

Supplement 3: Qualification Requirements for Ferritic Piping Welds

The PDI Program is in full compliance with Supplement 3 as modified by 10 CFR 50.55a for examinations conducted from outside the pipe. The PDI Program does not address examinations conducted from inside the pipe except for RPV nozzle-to-pipe welds.

Supplement 4: Qualification Requirements for the Clad/Base Metal Interface of Reactor Vessel

The PDI Program is in full compliance with Supplement 4 as modified by 10 CFR 50.55a.

Supplement 5: Qualification Requirements for Nozzle Inside Radius Section

The PDI Program is in full compliance with Supplement 5 as modified by 10CFR50.55a for examinations conducted from inside the reactor vessel.

The PDI Program is in full compliance with Code Case N-552 as modified by Regulatory Guide 1.147 for examinations conducted from outside the reactor vessel. Code Case N-552 is applicable to both the nozzle inside radius region and the inner portion (15%) of nozzle-to-shell welds when scanning for flaws oriented transverse to the weld. Code Case N-552 requires that all nozzles be modeled, including the inner portion of the nozzle-to-vessel weld, and introduces maximum metal path and maximum misorientation angles as new essential variables that must be qualified. Code Case N-552 is identified as an acceptable alternative in Regulatory Guide 1.147 and is identified in the SIIR. Nozzle modeling will be the responsibility of Seabrook.

Supplement 6: Qualification Requirements for Reactor Vessel Welds Other Than Clad/Base Metal Interface

The PDI Program is in full compliance with Supplement 6 as modified by 10 CFR 50.55a. In addition, the PDI Program considers that demonstrations conducted on clad vessel specimens in accordance with Supplement 4 exceed the requirements of Supplement 6 and may be used for examination of the inner 10% of unclad components without a relief request. Demonstrations performed on unclad vessel specimens, however, may not be used for the examination of clad vessels.

Supplement 7: Qualification Requirements for Nozzle-to-Vessel Welds

The PDI Program is in full compliance with Supplement 7 as modified by 10 CFR 50.55a. The title of this Supplement is somewhat misleading: originally intended as a stand-alone Supplement, the examination coverage requirements of 10 CFR 50.55a have resulted in this Supplement being applicable only to examinations conducted from the nozzle bore (for example, PWR inlet and outlet nozzles). Examinations of the inner portion (15%) of the vessel thickness conducted from the outside for flaws oriented transverse to the weld are qualified according to Supplement 5 using Code Case N-552 as above. Otherwise, Supplement 4 and 6 are applicable.

Supplement 8: Qualification Requirements for Bolts and Studs

The PDI Program provides personnel only demonstrations for bolting. This demonstration covers a range of bolting types and sizes, using the typical equipment and other essential variables. Other variables to be used in each examination shall be demonstrated during calibration, prior to the examination.

Supplement 9: Qualification Requirements for Cast Austenitic Piping Welds

In accordance with Appendix VIII, specific qualification requirements are in the course of preparation, and the requirements of Appendix III are applicable.

Supplement 10: Qualification Requirements for Dissimilar Metal Piping Welds

The PDI Program is not in compliance with Supplement 10. PDI qualifications are conducted in accordance with Code Case N-695. This Code Case is identified in RG 1.147, as acceptable and is included in the SIIR.

Supplement 11: Qualification Requirements for Full Structural Overlaid Wrought Austenitic Piping Welds

The PDI Program is in compliance with Supplement 11.

Supplement 12: Requirements for Coordinated Implementation of Selected Aspects of Supplements 2, 3, 10, and 11

The PDI Program is in full compliance with Supplement 12 as modified by 10 CFR 50.55a for the coordinated implementation of Supplements 2 and 3 for examinations conducted from the outside. It does not support the coordinated implementation of Supplements 10 and 11; these are performed on an individual basis. Supplement 14 is appropriate on a limited basis for examinations conducted from the inside surface.

Supplement 13: Requirements for Coordinated Implementation of Selected Aspects of Supplements 4, 5, 6, and 7

The PDI Program does not support this Supplement. Supplements 4, 5, 6, and 7 qualifications are performed on an individual basis.

Supplement 14: Qualification Requirements for Coordinated Implementation of Supplements 10, 2, and 3 for Piping Examinations Performed from the Inside Surface

Supplement 14 is functionally applicable only to PWR vessels. It is a new Supplement established by the PDI Program for a coordinated implementation of the qualifications required for the typical examinations performed from the ID of PWR nozzles. Supplement 14 uses the more technically stringent Supplement 10 qualification as a base and then incorporates a limited number of Supplement 2 and Supplement 3 samples. Qualification requirements for examination conducted from the inside surface are conducted in accordance with Code Case N-696. A relief request will be required if the examination procedure is incapable of depth sizing flaws to an accuracy of 0.125 root mean square (RMS).

6.6 Single Sided Access for Austenitic Welds

10 CFR 50.55a, requires that if access is available, the weld shall be scanned in each of the four directions (parallel and perpendicular to the weld) where required. Coverage credit may be taken for single sided exams on ferritic piping. However, for austenitic piping, a procedure must be qualified with flaws on the inaccessible side of the weld. There are currently no qualified single side examination procedures that demonstrate equivalency to two-sided examination procedures on austenitic piping welds. Current technology is not capable of reliably detecting or sizing flaws on the far side of an austenitic weld for configurations common to US nuclear applications.

The PDI Program conforms to 10 CFR 50.55a regarding single side access for piping. PDI Performance Demonstration Qualification Summary (PDQS) certificates for austenitic piping list the limitation that single side examination is performed on a best effort basis. The best effort qualification is provided in place of a complete single side qualification to demonstrate that the examiners qualification and the subsequent weld examination is based on application of the best available technology.

When the examination area is limited to one side of an austenitic weld, examination coverage does not comply with 10 CFR 50.55a(b)(2)(xv)(A) and proficiency demonstrations do not comply with 10CFR50.55a(b)(2)(xvi)(B) and full coverage credit may not be claimed.

Seabrook will document the affected austenitic welds for which best effort one sided exams are encountered and the percentage of the weld examined.

Seabrook will submit a request for relief of one sided examination of austenitic welds.

Credit will be taken for single sided access for ferritic welds and the weld shall be scanned in each of the four directions (parallel and perpendicular to the weld) where accessible.

6.7 Responsibilities

The ISI Program Owner is responsible for implementing the Appendix VIII program.

The Site Level III is responsible for certification and proficiency maintenance of NDE personnel.

7.0 AUGMENTED EXAMINATIONS

7.1 Reactor Coolant Pump Flywheels

The Seabrook Reactor Coolant Pump Flywheels will be examined in accordance with Seabrook Technical Specification 3/4 4.4.10, which requires the following examinations:

Each reactor coolant pump flywheel shall be inspected at least once every 10 years. This inspection shall be by either of the following examinations:

a) An in-place examination, utilizing ultrasonic testing, over the volume from the inner bore of the flywheel to the circle of one-half the outer radius; or

b) A surface examination, utilizing magnetic particle testing and/or penetrant testing, of the exposed surfaces of the disassembled flywheel.

7.2 Reactor Coolant System Piping

The Seabrook RCS Hot Leg Piping will be examined in accordance with Code Case N-722 as required by 10CFR50.55a(g)(6)(ii)(E). In addition, any remaining examinations of the RCS Hot Leg Piping required by MRP-139 will be performed.

Item No.	Items Required to be Examined	Method	Reference
B15.80	RPV bottom-mounted instrument penetrations, examination of all penetrations every other refueling outage	Visual, VE	
B15.90	RPV Hot leg nozzle-to-pipe connections, examination of all connections every refueling outage	Visual, VE	
B15.95	RPV Cold leg nozzle-to-pipe connections, examination of all connections once per interval	Visual, VE	
B15.120	Steam Generator Bottom channel head drain tube penetration, VE of all penetrations once per interval	Visual, VE	

7.3 Reactor Vessel Head

The Seabrook Reactor Vessel Top Head will be examined in accordance with Code Case N-729-1 as required by 10CFR50.55a(g)(6)(ii)(D). The following examinations will be performed:

Item No.	Items Required to be Examined	Method	Reference
B4.10	Head with UNS N06600 nozzles and UNS N06082 or UNS WS6182 partial penetration welds each refueling outage.	Visual, VE	Note 1
B4.20	UNS N06600 nozzles and UNS N06082 or UNS W86182 partial-penetration welds in head. Examination of all nozzles, every 8 calendar years or before Reinspection Years (RIY) = 2.25, whichever is less.	Volumetric and Surface	

Note 1: If the Effective Degradation Years (EDY) < 8 and no flaws unacceptable for continued service under -3130 or -3140 have been detected, the reexamination frequency may be extended to every third refueling outage or 5 calendar years, whichever is less, provided an IWA-2212 VT-2 visual examination of the head is performed under the insulation through multiple access points in outages that the VE is not completed. This IWA-2212 VT-2 visual examination may be performed with the reactor vessel depressurized.

7.4 Alloy 600 Mitigation

The Seabrook Pressurizer Full Structural Weld Overlays (Over Alloy 600 Nozzle-to-Pipe Welds) will be examined as follows:

Item No.	Items Required to be Examined	Method	Reference
N/A	Pressurizer Full Structural Weld Overlays Over A600 Nozzle-to-Pipe Welds. Two nozzles once per interval.	Volumetric	

8.0 TABLES

Table 2.1 Class 1, 2, 3 Component and Component Support ISI Examination Summary

Table 2.2 Augmented Examination Summary

Table 2.3 Pressure Test Summary

Table 2.4 Class 1, 2, and 3 Program Systems

Table 2.5 Weld and Component Isometric Drawings

Table 2.6 Vessel, Pump, and Valve Groupings

Table 2.7 Ultrasonic Calibration Block Standard

TABLE 2.1

SEABROOK CLASS 1, 2, 3 COMPONENT AND COMPONENT SUPPORT ISI EXAMINATION SUMMARY

The following definitions are provided for Table 2.1, Seabrook Class 1, 2, 3 Component and Component Support ISI Examination Summary:

1. Each applicable Examination Category and Item Number is listed. For example, when an Item Number is not listed, this indicates there are no applicable non-exempt components at Seabrook.
2. No. of Components is the total number of Seabrook components (or parts of components) within the Code Item Number.
3. No. of Exams is the total number of examinations that will be performed during the ten year interval. Examination scheduling will be in accordance with IWB-2412, IWC-2412, IWD-2412, and IWF-2412 unless it is modified by a Code Case or approved Relief Request.
4. Examination Method(s) listed are those shown in Tables IWB-2500-1, IWC-2500-1, IWD-2500-1 and IWF-2500-1, unless they are modified by a Code Case or approved Relief Request.
5. Relief Request(s) listed are all applicable Relief Requests and Alternative Requests for the noted Code Item Number.

TABLE 2.1

SEABROOK CLASS 1, 2, 3 COMPONENT AND COMPONENT SUPPORT ISI EXAMINATION SUMMARY

Examination Category	Item Number	Description of Components Or Parts of Components Examined	No. of Components	Number of Exams	Examination Method(s)	Relief Request(s)
B-A Pressure Retaining Welds in Reactor Vessel		Shell Welds				
	B1.11	Circumferential	3	3	Volumetric	3IR-1
	B1.12	Longitudinal	9	9	Volumetric	
		Head Welds				
	B1.21	Circumferential	2	2	Volumetric	3IR-1
	B1.22	Meridional	8	8	Volumetric	
	B1.30	Shell-to-Flange Weld	1	1	Volumetric	3IR-5
	B1.40	Head-to-Flange Weld	1	1	Surface and Volumetric	3IR-1

TABLE 2.1

SEABROOK CLASS 1, 2, 3 COMPONENT AND COMPONENT SUPPORT ISI EXAMINATION SUMMARY

Examination Category	Item Number	Description of Components Or Parts of Components Examined	No. of Components	Number of Exams	Examination Method(s)	Relief Request(s)
B-B Pressure Retaining Welds in Vessels Other Than Reactor Vessels		**Pressurizer Shell to Head Welds**				
	B2.11	Circumferential	2	2	Volumetric	
	B2.12	Longitudinal	2	2	Volumetric	
		Steam Generator (Primary Side) Head Welds				
	B2.40	Tubesheet to Head Weld	4	1	Volumetric	3IR-2
B-D Full Penetration Welded Nozzles in Vessels, Inspection Program B		**Reactor Vessel**				
	B3.90	Nozzle-to-Vessel Welds	8	8	Volumetric	3IR-1
	B3.100	Nozzle Inside Radius Section	8	8	Volumetric	
		Pressurizer				
	B3.110	Nozzle-to-Vessel Welds	6	6	Volumetric	3IR-2
	B3.120	Nozzle Inside Radius Section	6	6	Volumetric	
		Steam Generator (Primary Side)				
	B3.130	Nozzle-to-Vessel Welds	8	8	Volumetric	
	B3.140	Nozzle Inside Radius Section	8	8	Volumetric	

TABLE 2.1

SEABROOK CLASS 1, 2, 3 COMPONENT AND COMPONENT SUPPORT ISI EXAMINATION SUMMARY

Examination Category	Item Number	Description of Components Or Parts of Components Examined	No. of Components	Number of Exams	Examination Method(s)	Relief Request(s)
B-F Pressure Retaining Dissimilar Metal Welds in Vessel Nozzles		**Reactor Vessel**				
	B5.10	NPS 4 or Larger, Nozzle-to-Safe End Butt Welds	8	8	Surface and Volumetric	
		Steam Generator				
	B5.70	NPS 4 or Larger, Nozzle-to-Safe End Butt Welds	8	8	Surface and Volumetric	
B-G-1 Pressure Retaining Bolting Greater Than 2 inch In Diameter		**Reactor Vessel**				
	B6.10	Closure Head Nuts	54	54	Visual, VT-1	
	B6.20	Closure Studs	54	54	Surface and Volumetric	
	B6.40	Threads In Flange	54	54	Volumetric	
	B6.50	Closure Washers, Bushings	54	54	Visual, VT-1	
		Pumps				
	B6.180	Bolts and Studs	96	24	Surface and Volumetric	
	B6.190	Flange Surface, when connection is disassembled	4	1	Visual, VT-1	

TABLE 2.1

SEABROOK CLASS 1, 2, 3 COMPONENT AND COMPONENT SUPPORT ISI EXAMINATION SUMMARY

Examination Category	Item Number	Description of Components Or Parts of Components Examined	No. of Components	Number of Exams	Examination Method(s)	Relief Request(s)
B-G-2 Pressure Retaining Bolting 2 inch and Less In Diameter		**Pressurizer**				
	B7.20	Bolts, Studs, and Nuts	1	1	Visual, VT-1	
		Steam Generator				
	B7.30	Bolts, Studs, and Nuts	16	4	Visual, VT-1	
		Piping				
	B7.50	Bolts, Studs, and Nuts	5	5	Visual, VT-1	
		Pumps				
	B7.60	Bolts, Studs, and Nuts	4	1	Visual, VT-1	
		Valves				
	B7.70	Bolts, Studs, and Nuts	48	6	Visual, VT-1	
B-J Pressure Retaining Welds in Piping		**NPS 4 or Larger**				
	B9.11	Circumferential Welds	388	100	Surface and Volumetric	
		Less Than NPS 4				
	B9.21	**Circumferential Welds Other Than PWR High Pressure Safety Injection Systems**	235	60	Surface	
	B9.22	**Circumferential Welds of PWR High Pressure Safety Injection Systems**	To be populated	To be populated	Volumetric	
		Branch Pipe Connection Welds				
	B9.31	**NPS 4 or Larger**	11	3	Surface and Volumetric	
	B9.32	**Less Than NPS 4**	30	8	Surface	
	B9.40	**Socket Welds**	68	17	Surface	

TABLE 2.1

SEABROOK CLASS 1, 2, 3 COMPONENT AND COMPONENT SUPPORT ISI EXAMINATION SUMMARY

Examination Category	Item Number	Description of Components Or Parts of Components Examined	No. of Components	Number of Exams	Examination Method(s)	Relief Request(s)
B-K Welded Attachments for Class 1 Vessels, Piping, Pumps, and Valves	B10.10	**Pressure Vessels** Welded Attachments	5	1	Surface	
B-L-2 Pump Casings	B12.20	**Pumps** Pump Casing	4	1	Visual, VT-3	
B-M-2 Valve Body	B12.50	**Valves** Valves, Exceeding NPS 4, Valve Internal Surfaces	33	6	Visual, VT-3	
B-N-1 Interior of Reactor Vessel	B13.10	Vessel Interior	1	1	Visual, VT-3	
B-N-2 Welded Core Support Structures and Interior Attachments to Reactor Vessels	B13.60	**Reactor Vessel (PWR)** Interior Attachments Beyond Beltline Region	6	6	Visual, VT-3	
B-N-3 Removable Core Support Structures	B13.70	**Reactor Vessel** Core Support Structure	1	1	Visual, VT-3	

TABLE 2.1

SEABROOK CLASS 1, 2, 3 COMPONENT AND COMPONENT SUPPORT ISI EXAMINATION SUMMARY

Examination Category	Item Number	Description of Components Or Parts of Components Examined	No. of Components	Number of Exams	Examination Method(s)	Relief Request(s)
B-O Pressure Retaining Welds in Control Rod Housings	B14.20	**Reactor Vessel (PWR)** Welds in CRD Housing	11	2	Surface and Volumetric	
C-A Pressure Retaining Welds in Pressure Vessels	C1.10	Shell Circumferential Welds	14	4	Volumetric Visual, VT-2 RHR HX	N-706-1 RHR HX
	C1.20	Head Circumferential Welds	6	2	Volumetric	
	C1.30	Tubesheet-to-Shell Weld	6	2	Volumetric	
C-B Pressure Retaining Nozzle Welds in Vessels		**Nozzles Without Reinforcing Plate in Vessels > ½ in. Nominal Thickness**				
	C2.21	Nozzle-to Shell (Nozzle to Head or Nozzle to Nozzle) Weld	12	4	Surface and Volumetric	
	C2.22	Nozzle Inside Radius Section	8	1	Volumetric	3IR-3
		Nozzles With Reinforcing Plate in Vessels > ½ in. Nominal Thickness				
	C2.33	Nozzle-to-Shell (Nozzle to Head or Nozzle to Nozzle) Welds When Inside of Vessel is Inaccessible	4	4	Visual, VT-2	N-706-1 RHR HX

TABLE 2.1

SEABROOK CLASS 1, 2, 3 COMPONENT AND COMPONENT SUPPORT ISI EXAMINATION SUMMARY

Examination Category	Item Number	Description of Components Or Parts of Components Examined	No. of Components	Number of Exams	Examination Method(s)	Relief Request(s)
C-C Welded Attachments for Class 2 Vessels, Piping, Pumps, and Valves		**Pressure Vessels**				
	C3.10	Welded Attachments	2	1	Surface	
		Piping				
	C3.20	Welded Attachments	33	4	Surface	
C-F-1 Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping		**Piping Welds ≥ 3/8" NWT and > NPS 4"**				
	C5.11	Circumferential Welds	795	60	Surface and Volumetric	
		Piping Welds > 1/5" NWT and ≥ NPS 2" and ≤ NPS 4,				
	C5.21	Circumferential Welds	762	58	Surface and Volumetric	
	C5.30	Socket Welds	273	22	Surface	
		Pipe Branch Connections of Branch Piping ≥ NPS 2				
	C5.41	Circumferential Welds	14	1	Surface	

TABLE 2.1

SEABROOK CLASS 1, 2, 3 COMPONENT AND COMPONENT SUPPORT ISI EXAMINATION SUMMARY

Examination Category	Item Number	Description of Components Or Parts of Components Examined	No. of Components	Number of Exams	Examination Method(s)	Relief Request(s)
C-F-2 Pressure Retaining Welds in Carbon or Low Alloy Piping	N/A	**Risk Informed Break Exclusion (RI-BER) Piping** Circumferential Welds	457	42	Surface and Volumetric	Engineering Evaluation EE-07-035
D-A Welded Attachments For Vessels, Piping, Pumps, and Valves	D1.10	**Pressure Vessels** Welded Attachments	2	1	Visual, VT-1	
	D1.20	**Piping** Welded Attachments	90	10	Visual, VT-1	
F-A Supports	F1.10	Class 1 Piping Supports	253	65	Visual, VT-3	
	F1.20	Class 2 Piping Supports	798	122	Visual, VT-3	
	F1.30	Class 3 Piping Supports	90	10	Visual, VT-3	
	F1.40	Supports Other Than Piping Supports	29	11	Visual, VT-3	3IR-4

TABLE 2.2
SEABROOK AUGMENTED EXAMINATION SUMMARY

Examination Category	Item Number	Description of Components Or Parts of Components Examined	No. of Components	Number of Exams	Examination Method(s)	Relief Request(s)
USNRC Regulatory Guide 1.14	RG1.14	Reactor Coolant Pump Flywheels Note (a)	4	4	UT and Surface	
ASME Code Case N-722 Reactor Coolant System Piping	B15.80	RPV Bottom-Mounted Instrument Penetrations	58	58	Visual, VE	
	B15.90	RPV Hot Leg Nozzle-to-Pipe Connections	4	4	Visual, VE	
	B15.95	RPV Cold Leg Nozzle-to-Pipe Connections	4	4	Visual, VE	
	B15.120	SG Bottom Channel Head Drain Tube Penetration	4	4	Visual, VE	
ASME Code Case N-729-1 Reactor Vessel Head	B4.10	Head with UNS N06600 nozzles and UNS N06082 or UNS WS6182 partial penetration welds	79	79	Visual, VE	
	B4.20	UNS N06600 nozzles and UNS N06082 or UNS W86182 partial-penetration welds in head	79	79	Surface and Volumetric	
Alloy 600 Mitigation	N/A	Pressurizer Full Structural Weld Overlays Over A600 Nozzle-to-Pipe Welds (Notes b & c)	6	2	Volumetric	

Notes:

a) Examination of Reactor Coolant Pump Flywheels is in accordance with Technical Specification 3/4 4.4.10

b) Six (6) Pressurizer structural weld overlays examined in OR14, Spring 2011.

c) Examination of Pressurizer structural weld overlays approved per NRC SER dated May 1, 2008 (TAC No. MD5933). Also reference Engineering Evaluation EE-07-020.

TABLE 2.3
SEABROOK SYSTEM PRESSURE TESTING SUMMARY

Examination Category	Item Number	Description of Components Or Parts of Components Examined	No. of Components[a]	Number of Exams	Examination Method(s)	Relief Request(s)
B-P All Class 1 Pressure Retaining Components[b]	B15.10	Pressure Retaining Components	2	1	Visual, VT-2	
C-H All Class 2 Pressure Retaining Components[c]	C7.10	Pressure Retaining Components	17	17	Visual, VT-2	
D-B All Class 3 Pressure Retaining Components[c]	D2.10	Pressure Retaining Components	13	13	Visual, VT-2	

Notes:

a) No. of Components in this table corresponds to the number of procedures or PM tasks.

b) B-P pressure test performed at the conclusion of each refueling outage.

c) Pressure tests performed each ISI Period.

TABLE 2.4
ASME CLASS 1, 2, AND 3 SYSTEM CLASSIFICATION

		CLASSIFICATION OF COMPONENTS		
P& ID NUMBER	**P& ID TITLE**	**CLASS 1**	**CLASS 2**	**CLASS 3**
1-CBS-D20233	Containment Spray System		X	X
1-CC-D20205	Primary Component Cooling Loop A Detail			X
1-CC-D20206	Primary Component Cooling Loop A Detail			X
1-CC-D20207	Primary Component Cooling Loop A Detail		X	X
1-CC-D20209	Primary Component Cooling Loop A Detail		X	X
1-CC-D20211	Primary Component Cooling Loop "B" Detail			X
1-CC-D20212	Primary Component Cooling Loop "B" Detail			X
1-CC-D20213	Primary Component Cooling Loop "B" Detail		X	X
1-CGC-D20612	Combustible Gas Control System		X	X
1-CS-D20722	Chemical & Volume Control Sys Heat Exchangers Detail	X	X	X
1-CS-D20723	Chemical & Volume Control Sys Purification		X	X
1-CS-D20724	Chemical & Volume Control Sys Letdown Degasifier		X	
1-CS-D20725	Chemical & Volume Control Charging System		X	X
1-CS-D20726	Chemical & Volume Control Sys Seal Water		X	X
1-CS-D20727	Chemical & Volume Control System Thermal Regeneration		X	X
1-CS-D20728	Chemical & Volume Control System Thermal Regeneration			X
1-CS-D20729	Chemical & Volume Control Sys Boric Acid		X	X
1-DG-D20458	Diesel Generator Lube Oil System Train A			X
1-DG-D20459	Diesel Generator Fuel Oil System Train A			X
1-DG-D20460	Diesel Generator Starting Air System Train A			X
1-DG-D20461	Diesel Generator Cooling Water System Train A			X
1-DG-D20462	Diesel Generator Intake & Crankcase Vacuum System Train A			X
1-DG-D20463	Diesel Generator Lube Oil System Train B			X
1-DG-D20464	Diesel Generator Fuel Oil System Train B			X
1-DG-D20465	Diesel Generator Starting Air System Train B			X
1-DG-D20466	Diesel Generator Cooling Water System Train B			X
1-DG-D20467	Diesel Generator Intake & Crankcase Vacuum System Train B			X
1-FW-D20686	Feedwater System		X	X
1-FW-D20688	Emergency Feedwater System			X
1-MS-D20580	Main Steam System Main Steam Headers		X	

TABLE 2.4

ASME CLASS 1, 2, AND 3 SYSTEM CLASSIFICATION

		CLASSIFICATION OF COMPONENTS		
P& ID NUMBER	**P& ID TITLE**	**CLASS 1**	**CLASS 2**	**CLASS 3**
1-MS-D20581	Main Steam System Main Steam Headers		X	
1-MS-D20582	Main Steam System Emergency Feedwater Pump Supply		X	X
1-MS-D20583	Main Steam System Manifold & H.P. Turbine Piping		X	
1-MS-D20587	Main Steam System Main Steam Drains		X	
1-NG-D20135	Nitrogen Gas		X	
1-NG-D20136	Nitrogen Gas		X	
1-RC-D20841	Reactor Coolant System Loop No. 1	X	X	
1-RC-D20842	Reactor Coolant System Loop No. 2	X	X	
1-RC-D20843	Reactor Coolant System Loop No. 3	X	X	
1-RC-D20844	Reactor Coolant System Loop No. 4	X	X	
1-RC-D20845	Reactor Coolant System Reactor Vessel	X	X	
1-RC-D20846	Reactor Coolant System Pressurizer	X	X	
1-RH-D20662	Residual Heat Removal Sys Train A	X	X	X
1-RH-D20663	Residual Heat Removal Sys Train B Cross-Tie	X	X	X
1-RMW-D20360	Reactor Make-Up Water System		X[1]	X
1-SA-D20652	Service Air System Misc. Buildings		X[1]	
1-SB-D20626	Steam Generator Blowdown		X	
1-SF-D20482	Spent Fuel Pool Cooling and Clean-Up System			X
1-SF-D20484	Spent Fuel Pool Cooling and Clean-Up System		X	X
1-SI-D20446	Safety Injection System Intermediate Head Injection System	X	X	
1-SI-D20447	Safety Injection System High Head Injection System	X	X	
1-SI-D20450	Safety Injection System Low Head Injection (Accumulators) Detail	X	X	
1-SS-D20518	Sample System Nuclear Normal Operation		X	
1-SS-D20519	Sample System Nuclear Sample Panel CP-166A		X	X
1-SS-D20520	Sample System Nuclear-Post Accident		X[1]	
1-SW-D20794	Service Water System Nuclear			X
1-SW-D20795	Service Water System Nuclear			X
1-SW-D20796	Service Water System Nuclear			X
1-VG-D20780	Vent Gas System		X[1]	
1-WLD-D20218	Waste Processing Liquid Drains Reactor Coolant System		X[1]	
1-WLD-D20219	Waste Processing Liquid Drains Containment Building Sumps		X[1]	
1-WLD-D20221	Waste Processing Liquid Drains RHR Equipment Valves 1 & 2		X[1]	
1-WLD-D20222	Waste Processing Liquid Drains Primary Auxiliary Bldg		X[1]	

Notes:

1. Exempt Class 2 Containment Boundary Components only. Components are also exempt from system pressure testing per IWA-5110(c).

Table 2.5

Weld and Component Isometric Drawings

(Sheet 1 of 3)

Drawing	Title
1-NHY-202299ISI	Main Steam Atmospheric Relief Piping
1-NHY-202300ISI	Main Steam Atmospheric Relief Piping
1-NHY-202301ISI	Main Steam Line No. 4000
1-NHY-202302ISI	Main Steam Line No. 4001
1-NHY-202303ISI	Main Steam Line No. 4002
1-NHY-202304ISI	Main Steam Line No. 4003
1-NHY-202396ISI	Feedwater Line No. 4606
1-NHY-202397ISI	Feedwater Line No. 4607
1-NHY-202398ISI	Feedwater Line No. 4608
1-NHY-202399ISI	Feedwater Line No. 4609
1-NHY-202445ISI	Main Steam Safety Valve Discharge
1-NHY-650000	Excess Letdown Heat Exchanger CS-E-3
1-NHY-650001	Residual Heat Removal Heat Exchanger RH-E-9A
1-NHY-650002ISI	Residual Heat Removal Heat Exchanger RH-E-9B
1-NHY-650003	Regenerative Heat Exchanger 1-CS-E-2
1-NHY-650004	Reactor Coolant Pumps RC-P-1A-D
1-NHY-650005ISI	Reactor Coolant Pump Flywheel
1-NHY-650006ISI	Pressurizer RC-E-10
1-NHY-650007ISI	Reactor Vessel RC-E-1
1-NHY-650008ISI	Reactor Vessel RC-E-1
1-NHY-650009	Reactor Vessel RC-E-1
1-NHY-650010	Reactor Vessel RC-E-1
1-NHY-650011ISI	Steam Generator RC-E-11A (typ.)
1-NHY-650012ISI	Steam Generator RC-E-11A & 11B
1-NHY-650013ISI	Steam Generator RC-E-11C & 11D
1-NHY-800013ISI	RC System Line No. 13
1-NHY-800015ISI	RC System Line No. 15
1-NHY-800018ISI	RC System Line No. 18
1-NHY-800021ISI	RC System Line No. 21
1-NHY-800030ISI	RC System Line No. 30
1-NHY-800033ISI	RC System Line No. 33
1-NHY-800044ISI	RC System Line No. 44
1-NHY-800045ISI	RC System Line No. 45
1-NHY-800048ISI	RC System Line No. 48
1-NHY-800049ISI	RC System Line No. 49
1-NHY-800058ISI	RC System Line No. 58
1-NHY-800059ISI	RC System Line No. 59
1-NHY-800062ISI	RC System Line No. 62
1-NHY-800074ISI	RC System Line No. 74
1-NHY-800075ISI	RC System Line No. 75
1-NHY-800076ISI	RC System Line No. 76
1-NHY-800080ISI	RC System Line No. 80
1-NHY-800093ISI	RC System Line No. 93
1-NHY-800094ISI	RC System Line No. 94
1-NHY-800096ISI	RC System Line No. 96
1-NHY-800097ISI	RC System Line No. 97
1-NHY-800098ISI	RC System Line No. 98

Table 2.5

Weld and Component Isometric Drawings

(Sheet 2 of 3)

Drawing	Title
1-NHY-800151ISI	RH System Line No. 151
1-NHY-800152ISI	RH System Line No. 152
1-NHY-800155ISI	RH System Line No. 155
1-NHY-800157ISI	RH System Line No. 157
1-NHY-800158ISI	RH System Line No. 158
1-NHY-800159ISI	RH System Line No. 159
1-NHY-800160ISI	RH System Line No. 160
1-NHY-800161ISI	RH System Line No. 161
1-NHY-800162ISI	RH System Line No. 162
1-NHY-800163ISI	RH System Line No. 163
1-NHY-800167ISI	RH System Line No. 167
1-NHY-800178ISI	RH System Line No. 178
1-NHY-800179ISI	RH System Line No. 179
1-NHY-800180ISI	RH System Line No. 180
1-NHY-800201ISI	SI System Line No. 201
1-NHY-800202ISI	SI System Line No. 202
1-NHY-800203ISI	SI System Line No. 203
1-NHY-800204ISI	SI System Line No. 204
1-NHY-800250ISI	SI System Line No. 250
1-NHY-800251ISI	SI System Line No. 251
1-NHY-800256ISI	SI System Line No. 256
1-NHY-800257ISI	SI System Line No. 257
1-NHY-800258ISI	SI System Line No. 258
1-NHY-800259ISI	SI System Line No. 259
1-NHY-800260ISI	SI System Line No. 260
1-NHY-800261ISI	SI System Line No. 261
1-NHY-800270ISI	SI System Line No. 270
1-NHY-800272ISI	SI System Line No. 272
1-NHY-800273ISI	SI System Line No. 273
1-NHY-800274ISI	SI System Line No. 274
1-NHY-800275ISI	SI System Line No. 275
1-NHY-800324ISI	CS System Line No. 324
1-NHY-800325ISI	CS System Line No. 325
1-NHY-800326ISI	CS System Line No. 326
1-NHY-800327ISI	CS System Line No. 327
1-NHY-800328ISI	CS System Line No. 328
1-NHY-800329ISI	CS System Line No. 329
1-NHY-800330ISI	CS System Line No. 330
1-NHY-800331ISI	CS System Line No. 331
1-NHY-800355ISI	CS System Line No. 355
1-NHY-800357ISI	CS System Line No. 357
1-NHY-800358ISI	CS System Line No. 358
1-NHY-800362ISI	CS System Line No. 362
1-NHY-800363ISI	CS System Line No. 363
1-NHY-800364ISI	CS System Line No. 364
1-NHY-800365ISI	CS System Line No. 365
1-NHY-800366ISI	CS System Line No. 366

Table 2.5

Weld and Component Isometric Drawings

(Sheet 3 of 3)

Drawing	Title
1-NHY-800367ISI	CS System Line No. 367
1-NHY-800368ISI	CS System Line No. 368
1-NHY-800369ISI	CS System Line No. 369
1-NHY-800370ISI	CS System Line No. 370
1-NHY-800371ISI	CS System Line No. 371
1-NHY-800374ISI	CS System Line No. 374
1-NHY-800375ISI	CS System Line No. 375
1-NHY-800377ISI	CS System Line No. 377
1-NHY-800353ISI	CS System Line No. 353
1-NHY-800473ISI	CS System Line No. 473
1-NHY-801201ISI	CBS System Line No. 1201
1-NHY-801202ISI	CBS System Line No. 1202
1-NHY-801207ISI	CBS System Line No. 1207
1-NHY-801208ISI	CBS System Line No. 1208
1-NHY-801209ISI	CBS System Line No. 1209
1-NHY-801210ISI	CBS System Line No. 1210
1-NHY-801211ISI	CBS System Line No. 1211
1-NHY-801212ISI	CBS System Line No. 1212
1-NHY-801213ISI	CBS System Line No. 1213
1-NHY-801214ISI	CBS System Line No. 1214
1-NHY-801215ISI	CBS System Line No. 1215
1-NHY-801216ISI	CBS System Line No. 1216
1-NHY-804000ISI	MS System Line No. 4000
1-NHY-804001ISI	MS System Line No. 4001
1-NHY-804002ISI	MS System Line No. 4002
1-NHY-804003ISI	MS System Line No. 4003
1-NHY-804606ISI	FW System Line No. 4606
1-NHY-804607ISI	FW System Line No. 4607
1-NHY-804608ISI	FW System Line No. 4608
1-NHY-804609ISI	FW System Line No. 4609
1-NHY-805554ISI	Reactor Coolant Loop Weld ID
1-NHY-805555ISI	Reactor Coolant Loop Weld Table
1-NHY-860000ISI	RH Line No. 155 Weld Table
1-NHY-860001ISI	RH Line No. 158 Weld Table
1-NHY-860002ISI	RH Line No. 48 Weld Table
1-NHY-860003ISI	CS Line No. 369 Weld Table

Table 2.6
Vessel, Pump and Valve Groupings
(Sheet 1 of 2)

Class 1 Vessel Grouping

Steam Generators (Primary Side)

RC E-11A
RC E-11B
RC E-11C
RC E-11D

Class 2 Vessel Grouping

Steam Generators

RC E-11A
RC E-11B
RC E-11C
RC E-11D

Residual Heat Removal Heat Exchangers

RH E-9A
RH E-9B

Containment Building Spray Heat Exchangers

CBS-E-16A
CBS-E-16B

Class 1 Pump Grouping

Reactor Coolant Pumps

RC RC-P-1A
RC RC-P-1B
RC RC-P-1C
RC RC-P-1D

Table 2.6
Vessel, Pump and Valve Groupings
(Sheet 2 of 2)

Class 1 Valve Grouping

Group No.	Manufacturer	System	Valve No.	Description
1	Westinghouse	Reactor Coolant	RC-V-22 RC-V-23 RC-V-87 RC-V-88	12" Gate Valve
2	Crosby	Reactor Coolant	RC-V-115 RC-V-116 RC-V-117	6" Relief Valve
3	Westinghouse	Residual Heat Removal	RH-V-15 RH-V-29 RH-V-30 RH-V-31 RH-V-52 RH-V-53	6" Check Valve
			RH-V-50 RH-V-51	8" Check Valve
4	Westinghouse	Residual Heat Removal	RH-V-59 RH-V-61 RH-V-63 RH-V-65	6" Gate Valve
5	Westinghouse	Safety Injection	SI-V-3 SI-V-17 SI-V-32 SI-V-47	10" Gate Valve
6	Westinghouse	Safety Injection	SI-V-5 SI-V-6 SI-V-20 SI-V-21 SI-V-35 SI-V-36 SI-V-50 SI-V-51	10" Check Valve
			SI-V-82 SI-V-87	6" Check Valve

Table 2.7
Ultrasonic Calibration Block Standards

CalBlockID	MaterialSpec	Description
06-02-02		Pressurizer Head-to-Shell
1-RC-MM-427A	SA-516 GR.70	Pressurizer Support Skirt
1-RC-MM-427B	SA-533 GR.A	Pressurizer Shell & Nozzle
1-RC-MM-428A	SA-533 GR.A	Steam Generator
1-RC-MM-428B	SA-533 GR.B	Steam Generator
1-RC-MM-430A	SA-508	Steam Generator Primary
196-101	SA-533 GR.B	Reactor Pressure Vessel
196-102	SA-533 GR.B	Reactor Pressure Vessel
196-103	SA-533 GR.B	Reactor Pressure Vessel
196-104	SA-533 GR.B	Reactor Pressure Vessel
196-201	SA-533 GR.B	RPV Flange Ligament
196-202	SA-508	RPV Nozzle Safe End
196-206	SA-182 F-304	RPV CRD Mechanism
SB-1-CBS-HX	SA-240 TP.304	Vessel Shell
SB-1-RHR-HX	SA-240 TP.304	Vessel Shell
SB-10-140-SS	SA-376 TP.316	Piping Class 1 & 2
SB-10-40-SS	SA-312 TP.304	Class 2 Thin Wall
SB-10-80-CS	SA-106	Piping Class 1 & 2
SB-10-XX1-CS-	SA-234 WPB	Piping Class 1 & 2
SB-12-140-SS	SA-376 TP.316	Piping Class 1 & 2
SB-12-40-SS	SA-312 TP.304	Class 2 Thin Wall
SB-14-160-SS	SA-376 TP.304	Piping Class 1 & 2
SB-14-40-SS	SA-358 TP.304	Class 2 Thin Wall
SB-16-100-CS	SA-106 GR.B	Piping Class 1 & 2
SB-16-STD-SS	SA-358 TP.304	Class 2 Thin Wall
SB-18-100-CS	SA-106 GR.B	Piping Class 1 & 2
SB-18-XX1-CS	SA-105	Piping Class 1 & 2
SB-3-160-SS	SA-376 TP.316	Class 2 Thin Wall
SB-3-40-SS	SA-312 TP.304	Class 2 Thin Wall
SB-3-80-SS	SA-312 TP.304	Class 2 Thin Wall
SB-30-XX1-CS	SA-155 GR.KC70	Piping Class 1 & 2
SB-30-XX2-CS	SA-106 GR.C	Piping Class 1 & 2
SB-30-XX3-CS	SA-105	Piping Class 1 & 2
SB-32-XX1-CS	SA-155 GR.KC70	Piping Class 1 & 2
SB-32-XX2-CS	SA-155 GR.KC70	Piping Class 1 & 2
SB-4-160-SS	SA-376 TP.316	Piping Class 1 & 2
SB-4-80-SS	SA-312 TP.304	Class 2 Thin Wall
SB-6-160-SS	SA-376 TP.316	Piping Class 1 & 2
SB-6-40-SS	SA-312 TP.304	Class 2 Thin Wall
SB-6A-160-SS		Piping Class 1 & 2
SB-8-160-SS	SA-376 TP.316	Piping Class 1 & 2
SB-8-40-SS	SA-312 TP.304	Class 2 Thin Wall
SB-IR-23-CS	SA-508 CL 2	Pressurizer Spray Nozzles IR
SB-IR-27-CS	SA-508 CL 2	Pressurizer Safety Relief IR
SB-IR-32-CS	SA-508 CL 2	Pressurizer Surge Nozzle IR
SB-RC-3	SA-182 F.304	Piping Class 1 & 2
SB-RC-4	SA-376 GR.304	Piping Class 1 & 2
SB-RC-5	SA-351 GR.CF8A	Piping Class 1 & 2
SB-RCP-BOLT	SA-540 GR-B-24	Reactor Coolant Pump Bolt
SB-RV-STUD	SA-540 GR-B-24	Reactor Vessel Stud
SE-IR-47-CS	SA-508 CL 2	Steam Generator Feedwater
SB-PDI-304SS		Alternative ASME Block
SB-PDI-316SS		Alternative ASME Block
SB-PDI-516CS		Alternative ASME Block

9.0 SUMMARY OF CHANGES

Revision 13:

This revision reflects the updated ISI Program Plan and Schedule for the 3rd 10-Yr. Interval in accordance with ASME Section XI, 2004 Edition as modified by 10 CFR 50.55a requirements. In addition to updating the requirements included in former revisions of SIIR, this document now includes the requirements for Containment Inservice Inspection (CISI) per Section XI, Subsections IWE and IWL for the 2nd 10-Year Interval; previously these requirements were included in document FP 59253, Primary Containment Inservice Inspection Plan, which addressed the 1st 10-Year Interval for CISI.

1.0 ASME SUBSECTION IWE EXEMPTIONS AND REQUIREMENTS

ASME Class MC pressure retaining components and their integral attachments, metallic shell and penetration liners of Class CC pressure retaining components and their integral attachments and ASME Class CC component exemptions and applicable examination category requirements are summarized below with the corresponding relief requests, code cases, and augmented requirements referenced.

1.1 Subsection IWE Component Exemptions

The following components (or parts of components) are exempted from the examination requirements of IWE-2000:

(a) vessels, parts, and appurtenances outside the boundaries of the containment system as defined in the Design Specifications;

(b) embedded or inaccessible portions of containment vessels, parts, and appurtenances that met the requirements of the original Construction Code;

(c) portions of containment vessels, parts, and appurtenances that become embedded or inaccessible as a result of vessel repair /replacement activities if the conditions of IWE-1232(a) and (b) and IWE-5220 are met;

(d) piping, pumps, and valves that are part of the containment system, or which penetrate or are attached to the containment vessel. These components shall be examined in accordance with the requirements of IWB or IWC, as appropriate to the classification defined by the Design Specifications.

1.2 Examination Category E-A Requirements

Examination Category E-A requires examination of containment surfaces.

Item No.	Items Required to be Examined	Method	Reference
E1.11	Containment Vessel Pressure Retaining Boundary Accessible Surface Areas	General Visual	
E1.11B	Pressure Retaining Bolting	General Visual	
E1.11C	Pressure Retaining Bolting	VT-3	Note 1
E1.30	Moisture Barriers	General Visual	

NOTES:

1) An examination of the pressure-retaining bolted connections in Item E1.11 of Table IWE–2500–1 using the VT–3 examination method must be conducted once each interval per 10 CFR 50.55a(b)(2)(ix)(G). Per 10CFR50.55a(b)(2)(ix)(H), containment bolting that is disassembled during scheduled performance of the examinations in Item E1.11 of Table IWE-2500-1 must be examined using the VT-3 method.

1.3 Examination Category E-C Requirements

Examination Category E-C requires augmented examination of containment surfaces when applicable per IWE-1240.

Item No.	Items Required to be Examined	Method	Reference
E4.11	Visible Surfaces	VT-1	Note 1
E4.12	Surface Area Grid Minimum Wall Thickness Location	Ultrasonic Thickness	

NOTES:

1) VT-1 examination required per 10 CFR 50.55a(b)(2)(ix)(G)

2.0 ASME SUBSECTION IWL EXEMPTIONS AND REQUIREMENTS

ASME Class CC component exemptions and applicable examination category requirements are summarized below with the corresponding relief requests, code cases, and augmented requirements referenced. The Subsection IWL requirements for post-tensioning systems are not applicable to the Seabrook Station Unit 1 design.

2.1 Subsection IWL Component Exemptions

The following components (or parts of components) are exempted from the examination requirements of IWE-2000:

(a) tendon end anchorages that are inaccessible, subject to the requirements of IWL-2521.1;

(b) portions of the concrete surface that are covered by the liner, foundation material, or backfill, or are otherwise obstructed by adjacent structures, components, parts, or appurtenances.

2.2 Examination Category L-A Requirements

Examination Category L-A requires examination of concrete containment surfaces.

Item No.	Items Required to be Examined	Method	Reference
L1.11	Concrete Surface-All Accessible Surface Areas	General Visual	
L1.12	Concrete Surface-Suspect Areas	Detailed Visual	

3.0 ASME CLASS MC AND CLASS CC COMPONENT ACCEPTANCE STANDARDS

3.1 ASME Class MC Acceptance Standards

The following acceptance standards are applicable to Class MC Components and metallic shell and penetration liners of Class CC pressure retaining components:

Exam Category	Examination Area	Acceptance Standards
E-A	Containment Surfaces	IWE-3510
E-C	Containment Surfaces Requiring Augmented Examination	IWE-3511

3.2 ASME Class CC Acceptance Standards

The following acceptance standards are applicable to Class CC Components:

Exam Category	Examination Area	Acceptance Standards
L-A	Containment Surfaces	IWL-3210

4.0 TABLES

Table 4.1 IWE and IWL CISI Examination Summary

Table 4.2 Seabrook Class MC, Subsection IWE Inspection Areas

Table 4.3 Seabrook Class CC, Subsection IWL Inspection Areas

SECTION 4.0 TABLES

The following definitions are provided for Table 4.1, Seabrook Subsection IWE and Subsection IWL Component Examination Summary:

1. Each applicable Examination Category and Item Number is listed. For example, when an Item Number is not listed, this indicates there are no applicable components at Seabrook.
2. No. of Components is the total number of Seabrook components (or parts of components) within the Code Item Number.
3. No. of Exams is the total number of examinations that will be performed during the ten year interval. Examination scheduling will be in accordance with IWE-2412 and IWL-2500 unless it is modified by a Code Case or approved Relief Request.
4. Examination Method(s) listed are those shown in Tables IWE-2500-1 and IWL-2500-1, unless they are modified by a Code Case an approved Relief Request or 10 CFR50.55a.
5. Relief Request(s) listed are all applicable Relief Requests and Alternative Requests for the noted Code Item Number.

TABLE 4.1
SEABROOK SUBSECTION IWE AND SUBSECTION IWL COMPONENT EXAMINATION SUMMARY

Examination Category	Item Number	Description of Components Or Parts of Components Examined	No. of Components	Number of Exams	Examination Method(s)	Relief Request(s)
E-A Containment Surfaces	E1.11	Accessible Surface Areas (not including areas embedded in concrete, covered with insulation or wetted surfaces) [Note (a)]	164	492	General Visual	
	E1.11B	Pressure Retaining Bolting [Notes (b) and (c)]	16	48	General Visual	
	E1.11C	Pressure Retaining Bolting [Notes (b) and (c)]	16	16	Visual, VT-3	
E-C Containment Surfaces Requiring Augmented Examination	E4.11	Visible Surfaces [Notes (d) through (g)]	9	9	Visual, VT-1	
	E4.12	Surface Area Grid, Minimum Wall Thickness Location [Notes (d) and (e)]	9	9	Ultrasonic Thickness	
L-A Concrete	L1.11	Concrete Surface-All Accessible Surface Areas	24	48	General Visual	
	L1.12	Concrete Surface-Suspect Areas	0	0	Detailed Visual	

Notes:

a) See Table IWE-2500-1, Notes 1(a), 1(b), and 1(c) for examination scope.

b) Pressure-retaining bolted connections, including bolts, studs, nuts, bushings, washers, and threads in base material and flange ligaments between fastener holes. Bolted connections need not be disassembled for performance of examinations, and bolting may remain in place under tension. A General Visual examination is required per Table IWE-2500-1.

c) VT-3 examination (and VT-1 as applicable) of pressure retaining bolting are requirements of 10CFR50.55a(b)(2)(ix)(G) and (H). The VT-3 examination must be conducted once each interval per 10CFR50.55a(b)(2)(ix)(G). Per 10CFR50.55a(b)(2)(ix)(H), containment bolted connections that are disassembled during scheduled performance of the examinations in Item E1.11 of Table IWE-2500-1 must be examined using the VT-3 examination method. As an alternative to performing VT-3 examinations of containment bolted connections that are disassembled during the scheduled performance of Item E1.11, VT-3 examinations of containment bolted connections may be conducted whenever containment bolted connections are disassembled for any reason. Note that if flaws or degradation are identified during the performance of a VT-3 examination, the bolting must be examined in accordance with the VT-1 examination method.

d) Containment surface areas requiring augmented examination are those identified in IWE-1240.

e) The extent of examination shall be 100% for each inspection period until the areas examined remain essentially unchanged for the next inspection period. Such areas no longer require augmented examination in accordance with IWE-2420(c), and will revert back to Category E-A, Item No E1.11 or Item No E1.12.
f) VT-1 examination of Item Number E4.11 Containment Surface Areas is a requirement of 10CFR50.55a(b)(2)(ix)(G).
g) Number of components reflects Period 1 status.

TABLE 4.2
SEABROOK CLASS MC, SUBSECTION IWE INSPECTION AREAS
Sheet 1 of 4

Drawing No.	Examination Area	Elevation	Azimuth	Reference Drawings
SB-IWE-001	Containment Interior	(-)26'0", 0"0"	0^0 - 90^0	9673-F-101495 9673-F-101496
SB-IWE-002	Containment Interior	(-)26'0", 0"0"	90^0 - 180^0	9673-F-101495 9673-F-101496
SB-IWE-003	Containment Interior	(-)26'0", 0"0"	180^0 - 270^0	9673-F-101495 9673-F-101496
SB-IWE-004	Containment Interior	(-)26'0", 0"0"	270^0 - 0^0	9673-F-101495 9673-F-101496
SB-IWE-005	Containment Interior	0"0", 30'0"	0^0 - 90^0	9673-F-101495 9673-F-101496
SB-IWE-006	Containment Interior	0"0", 30'0"	90^0 - 180^0	9673-F-101495 9673-F-101496
SB-IWE-007	Containment Interior	0"0", 30'0"	180^0 - 270^0	9673-F-101495 9673-F-101496
SB-IWE-008	Containment Interior	0"0", 30'0"	270^0 - 0^0	9673-F-101495 9673-F-101496
SB-IWE-009	Containment Interior	30'0", 60'0"	0^0 - 90^0	9673-F-101495 9673-F-101496
SB-IWE-010	Containment Interior	30'0", 60'0"	90^0 - 180^0	9673-F-101495 9673-F-101496
SB-IWE-011	Containment Interior	30'0", 60'0"	180^0 - 270^0	9673-F-101495 9673-F-101496
SB-IWE-012	Containment Interior	30'0", 60'0"	270^0 - 0^0	9673-F-101495 9673-F-101496
SB-IWE-013	Containment Interior	60'0", 90'0"	0^0 - 90^0	9673-F-101495 9673-F-101496
SB-IWE-014	Containment Interior	60'0", 90'0"	90^0 - 180^0	9673-F-101495 9673-F-101496
SB-IWE-015	Containment Interior	60'0", 90'0"	180^0 - 270^0	9673-F-101495 9673-F-101496
SB-IWE-016	Containment Interior	60'0", 90'0"	270^0 - 0^0	9673-F-101495 9673-F-101496
SB-IWE-017	Containment Interior	90'0", 119'0"	0^0 - 90^0	9673-F-101495 9673-F-101496
SB-IWE-018	Containment Interior	90'0", 119'0"	90^0 - 180^0	9673-F-101495 9673-F-101496
SB-IWE-019	Containment Interior	90'0", 119'0"	180^0 - 270^0	9673-F-101495 9673-F-101496
SB-IWE-020	Containment Interior	90'0", 119'0"	270^0 - 0^0	9673-F-101495 9673-F-101496
SB-IWE-021	Containment Interior	119'0", 192'6"	0^0 - 90^0	9673-F-101495 9673-F-101496
SB-IWE-022	Containment Interior	119'0", 192'6"	90^0 - 180^0	9673-F-101495 9673-F-101496

TABLE 4.2
SEABROOK CLASS MC, SUBSECTION IWE INSPECTION AREAS
Sheet 2 of 4

Drawing No.	Examination Area	Elevation	Azimuth	Reference Drawings
SB-IWE-023	Containment Interior	119'0", 192'6"	180^0 - 270^0	9673-F-101495 9673-F-101496
SB-IWE-024	Containment Interior	119'0", 192'6"	270^0 - 0^0	9673-F-101495 9673-F-101496
SB-IWE-025	IWE Boundary for Attachments	Varies	Varies	
SB-IWE-026	Electrical Penetrations E-1 thru E-64	See Appendix C	See Appendix C	9673-F-101495
SB-IWE-027	Electrical Penetrations E-1 thru 8, 11, 14, 16, 18 thru 32, 34, 35, 38 thru 43, 45 thru 50, 52 thru 56	See Appendix C	See Appendix C	
SB-IWE-028	Electrical Penetrations E-17, 51	See Appendix C	See Appendix C	
SB-IWE-029	Mechanical Penetrations X-1 thru 15, 20,21, 35 thru 38, 48, 49	See Appendix C	See Appendix C	9673-F-101496
SB-IWE-030	Mechanical Penetrations X-1 thru 15, 63 thru 66	See Appendix C	See Appendix C	9763-F-805575
SB-IWE-031	Penetration X-38	90'0", 119'0"	110°	9763-F-805574
SB-IWE-032	Mechanical Penetrations X-16 thru 19, 22 thru 34, 39 thru 47, 50, 51, 52, 57, 58, 59, 63, 64, 65, 66 thru 72	See Appendix C	See Appendix C	9463-F-101496
SB-IWE-033	Mechanical Penetrations X-20 thru 27, 32, 33	See Appendix C	See Appendix C	9763-F-805575
SB-IWE-034	Mechanical Penetrations X-35 thru 37, 40, 43, 47, 48, 49, 52, 57, 77, 78	See Appendix C	See Appendix C	9763-F-805575
SB-IWE-035	Mechanical Penetrations X-41, 42, 44, 45, 46, 51, 58, 59, 69, 70	See Appendix C	See Appendix C	9763-F-805575
SB-IWE-036	Mechanical Penetrations X-17, 19, 28 thru 31, 34, 39, 50, 67, 68	See Appendix C	See Appendix C	9763-F-805575
SB-IWE-037	Mechanical Penetrations X-60, 61	(-)31', 6"	264°-37', 273°-15'	9463-F-101496
SB-IWE-038	Mechanical Penetrations X-60, 61	(-)31', 6"	264°-37', 273°-15'	9763-F-805575
SB-IWE-039	Penetration X-62	(-)9'-41/4"	184°-14'	9763-F-101495
SB-IWE-040	Penetration X-62	(-)9'-41/4"	184°-14'	9763-F-805573
SB-IWE-041	Penetration X-62	(-)9'-41/4"	184°-14'	9763-F-805573
SB-IWE-042	Mechanical Penetrations X-71 , 72	22'-9"	113°-30', 110°	9763-F-805575
SB-IWE-043	Penetrations HVAC-1 & HVAC-2	19'-3" , 13"-6'	225°, 235°	9763-F-101495
SB-IWE-044	Personnel Lock	29'-6"	315°	9763-F-101495

TABLE 4.2
SEABROOK CLASS MC, SUBSECTION IWE INSPECTION AREAS
Sheet 3 of 4

Drawing No.	Examination Area	Elevation	Azimuth	Reference Drawings
SB-IWE-045	Personnel Lock	29'-6"	315°	
SB-IWE-046	Equipment Hatch	37'-01/2"	150°	9763-F-101496
SB-IWE-047	Equipment Hatch	37'-01/2"	150°	9763-F-101496
SB-IWE-048	Containment Liner Bottom Plate	(-)30'-0"	Varies	9763-F-101462
SB-IWE-049	Containment Liner Bottom Plate	(-)30'-0"	Varies	
SB-IWE-050	Recirculation Sump/Pump Sump Areas	(-)30'-0"	Varies	9763-F-101462
SB-IWE-051	Recirculation Sump/Pump Sump Areas	(-)30'-0"	Varies	9763-F-101462
SB-IWE-052	Reactor Pit	(-)30'-0"	Varies	9763-F-101462
SB-IWE-053	Attachment Plates	Varies	Varies	
SB-IWE-054	Attachment Plates	Varies	Varies	
SB-IWE-055	Attachment Plates	Varies	Varies	9763-F-101915
SB-IWE-056	Lift Lugs	Varies	Varies	9763-F-101915
SB-IWE-057	Lift Lugs	Varies	Varies	9763-F-101915
SB-IWE-058	Lift Lugs	Varies	Varies	9763-F-101915
SB-IWE-059	Attachment Plates	Varies	Varies	
SB-IWE-060	Attachment Plates	Varies	Varies	9763-F-101915
SB-IWE-061	Duct Supports	Varies	Varies	9763-F-101461
SB-IWE-062	Duct Supports	Varies	Varies	9763-F-101461
SB-IWE-063	Duct Supports	Varies	Varies	9763-F-101461
SB-IWE-064	Duct Supports	Varies	Varies	9763-F-101461
SB-IWE-065	Attachment Plates	Varies	Varies	9763-F-101461
SB-IWE-066	Liner Attachments	Varies	Varies	9763-F-101461
SB-IWE-067	Attachment Plates	Varies	Varies	9763-F-101461
SB-IWE-068	Fixture Supports	Varies	Varies	9763-F-101499
SB-IWE-069	Conduit Supports	Varies	Varies	9763-F-101499
SB-IWE-070	Duct Supports	Varies	Varies	9763-F-101499
SB-IWE-071	Duct Supports	Varies	Varies	9763-F-101499
SB-IWE-072	Attachment Plate	Varies	Varies	9763-F-101499
SB-IWE-073	Attachment Plate	Varies	Varies	9763-F-101499

TABLE 4.2

SEABROOK CLASS MC, SUBSECTION IWE INSPECTION AREAS
Sheet 4 of 4

Drawing No.	Examination Area	Elevation	Azimuth	Reference Drawings
SB-IWE-074	Attachment Plate	Varies	Varies	9763-F-101499
SB-IWE-075	Equipment Hatch Attachment	Varies	Varies	9763-F-101499
SB-IWE-076	Attachment Plate	Varies	Varies	9763-F-101499
SB-IWE-077	Attachment Plate	Varies	Varies	9763-F-101499
SB-IWE-078	Attachment Plate	Varies	Varies	9763-F-101499
SB-IWE-079	Attachment Plate	Varies	Varies	9763-F-101499
SB-IWE-080	Attachment Plate	Varies	Varies	9763-F-101499

TABLE 4.3
SEABROOK CLASS CC, SUBSECTION IWL INSPECTION AREAS
Sheet 1 of 2

Drawing No.	Examination Area	Elevation	Azimuth	Reference Drawings
SB-IWL-001	Containment Interior	(-)30'0", 0"0"	0° - 90°	9673-F-101495 9673-F-101496
SB-IWL-002	Containment Interior	(-)30'0", 0"0"	90° - 180°	9673-F-101495 9673-F-101496
SB-IWL-003	Containment Interior	(-)30'0", 0"0"	180° - 270°	9673-F-101495 9673-F-101496
SB-IWL-004	Containment Interior	(-)30'0", 0"0"	270° - 0°	9673-F-101495 9673-F-101496
SB-IWL-005	Containment Interior	0"0", 30'0"	0° - 90°	9673-F-101495 9673-F-101496
SB-IWL-006	Containment Interior	0"0", 30'0"	90° - 180°	9673-F-101495 9673-F-101496
SB-IWL-007	Containment Interior	0"0", 30'0"	180° - 270°	9673-F-101495 9673-F-101496
SB-IWL-008	Containment Interior	0"0", 30'0"	270° - 0°	9673-F-101495 9673-F-101496
SB-IWL-009	Containment Interior	30'0", 60'0"	0° - 90°	9673-F-101495 9673-F-101496
SB-IWL-010	Containment Interior	30'0", 60'0"	90° - 180°	9673-F-101495 9673-F-101496
SB-IWL-011	Containment Interior	30'0", 60'0"	180° - 270°	9673-F-101495 9673-F-101496
SB-IWL-012	Containment Interior	30'0", 60'0"	270° - 0°	9673-F-101495 9673-F-101496
SB-IWL-013	Containment Interior	60'0", 90'0"	0° - 90°	9673-F-101495 9673-F-101496
SB-IWL-014	Containment Interior	60'0", 90'0"	90° - 180°	9673-F-101495 9673-F-101496
SB-IWL-015	Containment Interior	60'0", 90'0"	180° - 270°	9673-F-101495 9673-F-101496
SB-IWL-016	Containment Interior	60'0", 90'0"	270° - 0°	9673-F-101495 9673-F-101496
SB-IWL-017	Containment Interior	90'0", 119'0"	0° - 90°	9673-F-101495 9673-F-101496
SB-IWL-018	Containment Interior	90'0", 119'0"	90° - 180°	9673-F-101495 9673-F-101496
SB-IWL-019	Containment Interior	90'0", 119'0"	180° - 270°	9673-F-101495 9673-F-101496
SB-IWL-020	Containment Interior	90'0", 119'0"	270° - 0°	9673-F-101495 9673-F-101496
SB-IWL-021	Containment Interior	119'0", 192'6"	0° - 90°	9673-F-101495 9673-F-101496
SB-IWL-022	Containment Interior	119'0", 192'6"	90° - 180°	9673-F-101495 9673-F-101496

TABLE 4.3

SEABROOK CLASS CC, SUBSECTION IWL INSPECTION AREAS
Sheet 2 of 2

Drawing No.	Examination Area	Elevation	Azimuth	Reference Drawings
SB-IWL-023	Containment Interior	119'0", 192'6"	180° - 270°	9673-F-101495 9673-F-101496
SB-IWL-024	Containment Interior	119'0", 192'6"	270° - 0°	9673-F-101495 9673-F-101496
SB-IWL-025	Containment Wall	Varies	0° - 240°, 300°-360°	9673-F-101435
SB-IWL-026	Containment Wall	Varies	240° - 300°	9673-F-101435
SB-IWL-027	Containment Wall	Varies	0° - 300°	9673-F-101416

5.0 SUMMARY OF CHANGES

Revision 13:

This revision reflects the updated Containment Inservice Inspection (CISI) per Section XI, 2004 Edition, Subsections IWE and IWL for the 2nd 10-Year Interval. Previously these requirements were included in document FP 59253, Primary Containment Inservice Inspection Program Plan, which addressed the 1st 10-Year Interval for CISI.

Appendix A

RELIEF AND ALTERNATIVE REQUESTS

(See Section 1.12.4 for Relief and Alternative Request approval status)

3IR-1, Revision 0

Relief Request in Accordance with 10 CFR 50.55(g)(5)(iii)

--Inservice Inspection Impracticality--

Request For Relief For Reactor Vessel Welds

1. ASME Code Components Affected

Code Class:	1
System:	RC
Examination Categories:	B-A, Pressure Retaining Welds in Reactor Vessel B-D, Full Penetration Welded Nozzles in Vessels
ISI Component IDs:	See Table 1

2. Applicable Code Edition and Addenda

NextEra Energy Seabrook (Seabrook) is currently in the 3rd 10-Year Inservice Inspection (ISI) Interval. The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) of record for the current 10-Year ISI interval is Section XI, 2004 Edition.

3. Applicable Code Requirements:

ASME Section XI, 2004 Edition, Table IWB-2500-1

Category B-A, Pressure Retaining Welds in Reactor Vessel
Item No. B1.11, Circumferential Shell Welds
Item No. B1.21, Circumferential Head Welds
Item No. B1.40, Head-to-Flange Weld

Category B-D, Full Penetration Welded Nozzles in Vessels
Item No. B3.90, Nozzle-to-Vessel Welds (Reactor Vessel)

Seabrook has adopted ASME Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds. This Code Case provides the alternative requirement when the entire examination volume or area cannot be examined due to interference by another component or part geometry, a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

3IR-1, Revision 0

4. Impracticality of Compliance

Pursuant to 10CFR50.55a(g)(5)(iii), Seabrook has determined that, due to design and geometric configuration, it is impractical to meet the Code required 100% coverage of Section XI or the alternative examination coverage requirements of Code Case N-460 on welds identified in Table 1.

RPV Circumferential Shell Weld

Reactor vessel lower head to lower shell circumferential weld, RC RPV 104-141 is situated just below six (6) core support lugs, which are fixed in place. Each core support lug occupies about 20 degrees of space including the attachment weld. This circumferential weld was completely scanned between the core lugs and the accessible areas below the lugs in both the parallel and perpendicular directions to maximize coverage.

RPV Circumferential Head Weld

Reactor vessel lower head circumferential weld, RC RPV 102-151 is located in elevation at the periphery of the lower head penetrations. The weld was scanned in numerous individual segments between and around the penetrations. The end effector was guided into position by cameras and scanning parameters were established to maximize coverage.

RPV Head-to-Flange Weld

Reactor vessel head-to-flange weld, RC RPV 101-101 has limited coverage due to close proximity of the weld to the reactor vessel head flange. The weld is sufficiently close such that only a one sided ultrasonic examination is possible. The surface examination of this weld is fully achievable.

RPV Nozzle Welds

Four reactor vessel nozzle welds listed in Table 1 have limited coverage due to nozzle protrusion on the outlet nozzle-to-shell weld limiting UT scans.

5. Burden Caused by Compliance

To achieve Code required examination coverage per ASME Code Case N-460, redesign of the reactor vessel would be required to effect coverage limitations.

3IR-1, Revision 0

6. Proposed Alternative And Basis for Use

There are no alternate examinations proposed. Volumetric examination of the subject welds will be completed to the maximum extent practical.

In addition to the limited volumetric examinations, welds identified in Table 1 are subject to VT-2 visual examination conducted during the system leakage test each refueling outage as specified in Table IWB-2500-1, Examination Category B-P of the 2004 Edition of ASME Section XI.

Seabrook believes that the volumetric examination coverage achieved and acceptable UT examination results, as well as previous acceptable results of VT-2 visual examinations, provide reasonable assurance of continued structural integrity of these welds, and an acceptable level of quality and safety is maintained.

7. Duration of Proposed Alternative

The alternative requirements of this request will be applied for the remaining duration of the current 3rd 10-year ISI interval.

8. Precedents

- Second interval relief request 2IR-1 Rev. 0 was approved for Seabrook Station by the NRC in a Safety Evaluation Report dated March 21, 2001 (TAC No. MA9902).
- Second interval relief request 2IR-10 Rev. 0 was approved for Seabrook Station by the NRC in a Safety Evaluation Report dated March 21, 2001 (TAC No. MA9902).

This relief request combines the two approved relief requests above from the 2nd 10-Year ISI interval. Limitations associated with the reactor vessel are presented in this one relief request.

Generally, this relief request presents coverage improvements from the previous interval due to improvements in method and technology. One weld, RC RPV 103-101 (upper reactor vessel head) from the previous interval is not included in this relief due to achievement of > 90% coverage.

3IR-1, Revision 0

Table 1
Reactor Vessel Welds

Weld Identification	Weld Description	Code Category	Code Item	Limitation	CRV Coverage
RC RPV 104-141	Lower head to shell weld	B-A	B1.11	Six (6) core support lugs located just above weld.	77%
RC RPV 102-151	Lower head circumferential weld	B-A	B1.21	Interference of lower head penetrations	67%
RC RPV 101-101	Upper head to flange weld	B-A	B 1.40	One-sided exam due to CRD Shield. Obstruction due to lifting lugs.	50%
RC RPV 107-121-A	Nozzle to vessel weld	B-D	B 3.90	Nozzle protrusion on the outlet nozzle-to-shell weld	86%
RC RPV 107-121-D	Nozzle to vessel weld	B-D	B 3.90	Nozzle protrusion on the outlet nozzle-to-shell weld	86%
RC RPV 107-121-E	Nozzle to vessel weld	B-D	B 3.90	Nozzle protrusion on the outlet nozzle-to-shell weld	86%
RC RPV 107-121-H	Nozzle to vessel weld	B-D	B 3.90	Nozzle protrusion on the outlet nozzle-to-shell weld	86%

3IR-2, Revision 0

Relief Request in Accordance with 10 CFR 50.55(g)(5)(iii)

--Inservice Inspection Impracticality--

Request for Relief for Pressurizer and Steam Generator Welds

1. ASME Code Components Affected

Code Class:	1
System:	RC
Examination Categories:	B-B, Pressure Retaining Welds in Vessels Other Than Reactor Vessels B-D, Full Penetration Welded Nozzles in Vessels
ISI Component IDs:	See Table 1

2. Applicable Code Edition and Addenda

NextEra Energy Seabrook (Seabrook) is currently in the 3rd 10-Year Inservice Inspection (ISI) Interval. The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) of record for the current 10-Year ISI interval is Section XI, 2004 Edition.

3. Applicable Code Requirements:

ASME Section XI, 2004 Edition, Table IWB-2500-1

Category B-B, Pressure Retaining Welds in Vessels Other Than Reactor Vessels
Item No. B2.40, Tubesheet-to-Head Weld (Steam Generators)

Category B-D, Full Penetration Welded Nozzles in Vessels
Item No. B3.110, Nozzle-to-Vessel Welds (Pressurizer)

Seabrook has adopted ASME Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds. This Code Case provides the alternative requirement when the entire examination volume or area cannot be examined due to interference by another component or part geometry, a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

3IR-2, Revision 0

4. Impracticality of Compliance

Pursuant to 10CFR50.55a(g)(5)(iii), Seabrook has determined that, due to design and geometric configuration, it is impractical to meet the Code required 100% coverage of Section XI or the alternative examination coverage requirements of Code Case N-460 on the welds identified in Table 1.

Steam Generator Tubesheet-to-Head Weld

Steam generator tubesheet-to-head weld, RC E-11A SEAM-1 can not be examined for essentially 100% of the weld length due to design (physical obstruction from four steam generator support pads). These pads are approximately 18" in length and block access to this weld where the four steam generator supports are located. These obstructions limit the weld examination volume to 80%.

In addition to the limited volumetric examination, the steam generator tubesheet-to-head weld is subject to VT-2 visual examination conducted during the system leakage test each refueling outage as specified in Table IWB-2500-1, Examination Category B-P of the 2004 Edition of ASME Section XI.

Seabrook believes that previous acceptable results of volumetric examination on 80% of the weld examination volume is representative of the entire weld. In addition to the volumetric examination, the acceptable results of volumetric examination of similar Class 2 girth welds on this steam generator, the acceptable results of visual examinations and pressure tests performed each refueling outage provides reasonable assurance of continued structural integrity of this weld, and maintains an acceptable level of quality and safety.

Pressurizer Nozzle Welds

Pressurizer nozzle welds listed in Table 1 have limited coverage due to the nozzle to shell geometry. The transition from the Pressurizer vessel to nozzle is large over a short distance. This causes transducer sound beam propagation angle to change abruptly thereby not fully interrogating the required ASME examination volume. Each nozzle has its own unique fit-up, weld, and finish contour which presents specific individual limitations on examination volume. As listed in Table 1, these limitations result in coverage from 53% to 80% of the total examination volume.

Seabrook believes that the achievable examination volumes are representative of the entirety of each weld. ASME Code Category B-D, Item No. B3.110, requires that all Pressurizer nozzle-to-vessel welds be examined volumetrically. Since all of the nozzles require examination, the probability of finding a flaw is increased. Seabrook believes that it is impractical grind these transitions or add weld material to increase examination volume. These techniques could decrease the level of quality and safety in the Pressurizer nozzle welds.

In addition to the limited volumetric examinations, the Pressurizer nozzle to vessel welds are subject to VT-2 visual examination conducted during the system leakage test each refueling outage as specified in Table IWB-2500-1, Examination Category B-P of the 2004 Edition of ASME Section XI.

3IR-2, Revision 0

Seabrook believes that previous acceptable results of volumetric examinations of Pressurizer nozzle to vessel welds, acceptable results of visual examinations during pressure tests performed each refueling outage, provides reasonable assurance of continued structural integrity of these welds, and maintains an acceptable level of quality and safety.

5. Burden Caused by Compliance

To achieve Code required examination coverage per ASME Code Case N-460 for the steam generator tubesheet-to-head weld, redesign of the four supports would be required to effect coverage limitations. For the Pressurizer nozzle-to-shell welds, redesign of the nozzles by grinding or adding weld material would be required to effect coverage limitations.

6. Proposed Alternative And Basis for Use

There are no alternate examinations proposed. Volumetric examination of the subject welds will be completed to the maximum extent practical.

7. Duration of Proposed Alternative

The alternative requirements of this request will be applied for the remaining duration of the current 3rd 10-year ISI interval.

8. Precedents

- Second interval relief request 2IR-2 Rev. 0 was approved for Seabrook Station by the NRC in a Safety Evaluation Report dated March 21, 2001 (TAC No. MA9902)

Generally, this relief request presents some coverage improvements from the previous interval due to improvements technology. Three welds from the previous interval are not included in this relief due to achievement of >90% coverage.

3IR-2, Revision 0

Table 1
Nozzle and Circumferential Welds

Weld Identification	Weld Description	Code Category	Code Item	Limitation	CRV Coverage
RC E-11A SEAM-1	Steam Generator tubesheet-to-head weld	B-B	B2.40	Four (4) Steam Generator support pads	80%
RC E-10 A-NZ	Pressurizer nozzle-to-shell weld	B-A	B3.110	Interference of lower head penetrations	71%
RC E-10 B-NZ	Pressurizer nozzle-to-shell weld	B-A	B3.110	Nozzle to shell geometry	55%
RC E-10 C-NZ	Pressurizer nozzle-to-shell weld	B-D	B3.110	Nozzle to shell geometry	53%
RC E-10 D-NZ	Pressurizer nozzle-to-shell weld	B-D	B3.110	Nozzle to shell geometry	77%
RC E-10 S-NZ	Pressurizer nozzle-to-shell weld	B-D	B3.110	Nozzle to shell geometry	71%
RC E-10 SP-NZ	Pressurizer nozzle-to-shell weld	B-D	B3.110	Nozzle to shell geometry	77%

3IR-3, Revision 0

Relief Request in Accordance with 10 CFR 50.55(g)(5)(iii)

--Inservice Inspection Impracticality--

Sheet 1 of 2

Request for Relief for Steam Generator Main Steam Outlet Nozzle Inside Radius Section

1. ASME Code Components Affected

Code Class:	2
System:	RC
Examination Categories:	C-B, Pressure Retaining Nozzle Welds in Vessels
ISI Component ID:	RC E-11A 16-IR

2. Applicable Code Edition and Addenda

NextEra Energy Seabrook (Seabrook) is currently in the 3rd 10-Year Inservice Inspection (ISI) Interval. The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) of record for the current 10-Year ISI interval is Section XI, 2004 Edition.

3. Applicable Code Requirements:

ASME Section XI, 2004 Edition, Table IWC-2500-1

Category C-B, Pressure Retaining Nozzle Welds in Vessels
Item No. C2.22, Nozzle Inside Radius Section

ASME Section XI, 2004, Table IWC-2500-1 Category C-B, Item No. C2.22 – Nozzle Inside Radius Section requires that the inner radius sections of all nozzles at terminal ends of piping runs be volumetrically examined.

Note 4 of Table IWC-2500-1, Category C-B states "in the case of multiple vessels of similar design, size, and service (such as steam generators, heat exchangers), the required examinations may be limited to one vessel or distributed among the vessels."

4. Impracticality of Compliance

Pursuant to 10CFR50.55a(g)(5)(iii), Seabrook has determined that due to design and geometry, the volumetric examination requirement for nozzle inside radius section of the Steam Generator Main Steam Outlet Nozzle Inner Radius, RC E-11A 16-IR as specified in Table IWC-2500-1, Examination Category C-B, Item No. C2.22 is impractical to meet.

3IR-3, Revision 0

5. Burden Caused by Compliance

The steam generator main steam outlet nozzle is somewhat typical of a dropout nozzle, which is welded to the head; however, it is unlike a forged dropout, which has an inner radius transition. The main steam outlet nozzle contains a flow limiter device within the bore of the nozzle. This device makes a square transition to the nozzle making it ultrasonically impractical to examine. Outlet nozzle replacement with a different design nozzle would be required to comply with this examination requirement. A replacement of this magnitude would be impractical.

6. Proposed Alternative And Basis for Use

No alternate examinations of inner radius section RC E-11A 16-IR are proposed.

The steam generator main steam outlet nozzle weld (RC E-11A 16-NZ) receives a volumetric and surface examination as specified in Table IWC-2500-1, Examination Category C-B of the 2004 Edition of ASME Section XI.

Volumetric coverage of this weld is greater than 90%, which is considered full coverage in accordance with Code Case N-460. Code Case N-460 is approved for use in Regulatory Guide 1.147 and included in the Seabrook 3rd Interval ISI Program. Surface examination coverage of this weld is 100%.

In addition, a VT-2 examination associated with the system pressure test is performed on this weld each inspection period as specified in Table IWC-2500-1, Examination Category C-H of the 2004 Edition of ASME Section XI.

The full volumetric examination coverage, the 100% surface examination coverage, and visual examination associated with the system pressure test conducted on the nozzle weld provide reasonable assurance of continued structural integrity.

7. Duration of Proposed Alternative

The alternative requirements of this request will be applied for the remaining duration of the current 3rd 10-year ISI interval.

8. Precedents

- Second interval relief request 2IR-4 Rev. 0 was approved for Seabrook Station by the NRC in a Safety Evaluation Report dated March 21, 2001 (TAC No. MA9902)

This relief request is essentially the same as 2IR-4 approved for the 2nd 10-Year ISI interval. One difference is the omission of weld CS E-3 C. This weld is on the Excess Letdown Heat Exchanger, which is exempt per the 2004 Edition of ASME Section XI.

3IR-4, Revision 0

Proposed Alternative in Accordance with CFR 50.55a(a)(3)(ii)

--Hardship or Unusual Difficulty
Without Compensating Increase in Level of Quality or Safety--

Request for Relief for Pressurizer Supports

1. ASME Code Components Affected

Code Class:	1
System:	RC
Examination Category:	F-A
Item No:	F1.40, Supports Other Than Piping
ISI Component ID:	RC E-10 A-LUG Support RC E-10 B-LUG Support RC E-10 C-LUG Support RC E-10 D-LUG Support

2. Applicable Code Edition and Addenda

NextEra Energy Seabrook (Seabrook) is currently in the 3rd 10-Year Inservice Inspection (ISI) Interval. The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) of record for the current 10-Year ISI Interval is Section XI, 2004 Edition.

3. Applicable Code Requirement

ASME Section XI, 2004 Edition, Table IWF-2500-1

Category F-A, Supports

Item No. F1.40, Supports Other Than Piping

4. Reason for Request

Pursuant to 10CFR50.55a(a)(3)(ii), relief is requested from performing the visual examination of the four Pressurizer supports on the basis that meeting the Code requirements present unusual difficulty.

A 15″ thick concrete shield wall weighing approximately 85,000 pounds surrounds the Seabrook Pressurizer approximately three quarters of the way around. The clearance between the shield wall and the Pressurizer vessel is approximately 9½″. The north end of the cubicle has greater vessel to shield wall clearance, but is where safety valve piping and spray piping run. Ladders or platforms do not exist to make the examination area accessible nor can any ladders be placed due to restrictions by piping, conduit and other attachments.

The subject supports are associated with seismic lugs and are located on the Pressurizer at elevation 23′-6″.

3IR-4, Revision 0

Potential access is gained by climbing a ladder on the outside of the shield wall and entering the cubicle at the top of the Pressurizer at elevation 50'. Safety valve structural steel is used for footing as no platform exists in the cubicle. The Seabrook Safety Department evaluated the lack of normal and emergency access/egress as an unsafe work environment.

Consideration was given to remote visual techniques, but overcoming the nearly 27' distance containing numerous obstacles also presented unusual difficulty.

5. Proposed Alternative and Basis for Use:

No alternate examinations for the Pressurizer supports are proposed.

The unusually difficult normal and emergency access/egress inside this highly restricted enclosure to perform the visual examinations does not provide a compensating increase in quality and safety.

A likely failure mechanism of these supports would involve a transient or seismic activity, which could impose rotational forces on the Pressurizer. Attached lugs that exist between these supports could impart forces on the supports from a transient or seismic event. There has been no documented seismic event or transient affecting the Pressurizer. These attachments are subject to VT-2 visual examination as part of the system leakage test on the Pressurizer vessel conducted each refueling outage as specified in Table IWB-2500-1, Examination Category B-P of the 2004 Edition of ASME Section XI. The VT-2 examination provides evidence that potential damage to the lugs has not breached the pressure boundary of the Pressurizer.

6. Duration of Proposed Alternative

The alternative requirements of this request will be applied for the remaining duration of the current 3rd 10-year ISI interval.

7. Precedents

- A similar first interval relief request, IR-12 Rev. 0 was approved for Seabrook Station by the NRC in a letter dated September 3, 2002 (TAC No. MB2561)

- A second interval relief request, 2IR-12 Rev. 0 was approved for Seabrook Station by the NRC for the B-K components listed in this relief request in a letter dated March 21, 2001 (TAC No. MA9902)

3IR-5, Revision 0

Proposed Alternative in Accordance with 10 CFR 50.55a(a)(3)(i)

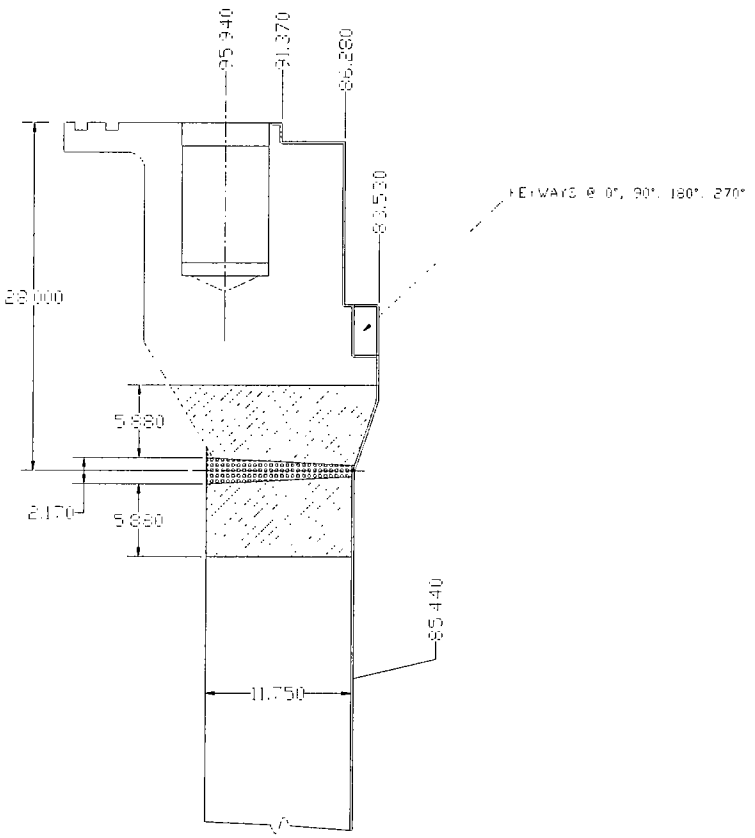
--Alternative Provides Acceptable Level of Quality and Safety—

Request for Relief to use PDI Demonstrated Ultrasonic Techniques for the Examination of the Reactor Pressure Vessel Flange-to-Upper Shell Weld

1. ASME Code Components Affected

Code Class:	1
System:	RC
Examination Categories:	B-A
Item No.:	B1.30, Shell-to-Flange Weld
ISI Component ID:	RC RPV-101-121

2. Component Detail Drawing:



3IR-5, Revision 0

3. Applicable Code Edition and Addenda

NextEra Energy's Seabrook Station (Seabrook) is currently in the 3rd 10-year Inservice Inspection (ISI) interval. The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) of record for the current 10-year ISI interval is Section XI, 2004 Edition (Reference 1).

4. Applicable Code Requirement

ASME Section XI, 2004 Edition, Appendix I, Article I-2100, paragraph (b) requires "Ultrasonic examination of reactor vessel-to-flange welds shall be conducted in accordance with Article 4 of ASME Section V, except that alternative examination beam angles may be used. These examinations shall be further supplemented by Table I-2000-1."

5. Reason for Request

Seabrook is performing volumetric examinations of all Reactor Pressure Vessel (RPV) welds during the upcoming ten-year RPV Inservice Inspection (ISI). Seabrook is required to perform the ten-year RPV ISI pursuant to 10CFR50.55a. The Code requires that Ultrasonic (UT) examination of RPV welds, excluding the vessel-to-flange weld, shall be with techniques that have been demonstrated in accordance with AMSE Code Section XI, Appendix VIII. Further, in accordance with Appendix I, Paragraph I-2110(b), "Ultrasonic examination of reactor vessel-to-flange welds, closure head-to-flange welds, and integral attachment welds shall be conducted in accordance with Article 4 of Section V, except that alternative examination beam angles may be used."

Examination from the inside surface provides the best access for examination of the RPV shell-to-flange weld. The flange forging contains both inside and outside surface tapers, the outside taper angle is more than twice the angle of the inside surface taper. While both tapers will interfere with the examination to some degree, the inside surface taper provides the least amount of interference. Additionally, the outside surface of the RPV is typically inaccessible due to its placement inside the biological-shield wall and the installed insulation. Examination of this weld from the outside surface would require the removal of the installed insulation and access beneath the cavity seal ring. These efforts would result in significant personnel radiation exposure without a compensating increase in the level of quality and safety.

Although the reactor vessel-to-flange weld is specifically excluded from the referenced codes requiring Appendix VIII/PDI qualified techniques, Seabrook believes that performing the reactor vessel-to-flange weld examination with PDI qualified personnel and procedures from the inside surface will provided an acceptable level of quality and safety.

6. Proposed Alternative And Basis for Use

In lieu of requirements specified in the ASME Code, Section XI, Appendix I, Subarticle I-2110, Paragraph (b), Seabrook proposes to use procedures, personnel, and equipment qualified to the requirements of ASME Section XI Appendix VIII, Supplements 4 and 6 of the 2004 Edition, as administered by the Electric Power Research Institute's (EPRI) PDI program to conduct the vessel-to-flange weld examination. The RPV examination vendor will perform examinations designed to achieve the maximum coverage possible utilizing PDI qualified procedures and personnel from the inside surface. The proposed alternative represents the best techniques, procedures, and qualifications available to perform UT examinations of RPV welds. The PDI program addresses qualification requirements for each of the supplements that are defined in Appendix VIII of ASME Section XI. The applicable vendor procedure has been qualified in accordance with PDI's implementation of Supplements 4[1] and 6[2] of Appendix VIII.

The listed weld is the only circumferential shell weld in the RPV that is not examined with ASME Section XI, Appendix VIII techniques, as mandated in 10 CFR 50.55a. This rule mandates the use of ASME Section XI, Appendix VIII, Supplements 4 and 6 for the conduct of all other RPV weld examinations. Per Appendix I, Article I-2100, paragraph (b), ASME Section V, Article 4 techniques shall be used for the listed weld. ASME Section V, Article 4 describes required techniques to be used for UT of welds in ferritic pressure vessels with wall thicknesses greater than 2 inches. The calibration techniques, recording criteria and flaw sizing methods are based upon the use of a distance-amplitude-correction curve (DAC) derived from machined reflectors in a basic calibration block. UT performed in accordance with Section V, Article 4, uses recording thresholds known as percent of DAC for recording and reporting of indications within the examination volume. Indications detected in the exam volume, with amplitudes below these thresholds, are not required to be recorded and/or evaluated. Use of the Appendix VIII qualified techniques would enhance the quality of the examination.

The detection criterion is more conservative and the procedure requires the examiner to evaluate all indications determined to be flaws regardless of their amplitude. The recording thresholds in Section V, Article 4 are generic and do not take into consideration of such factors as flaw orientation, which can influence the amplitude of UT responses.

[1] "QUALIFICATION REQUIEMENTS FOR THE CLAD/BASE METAL INTERFACE OF REACTOR VESSEL"
[2] "QUALIFICATION REQUIREMENTS FOR REACTOR VESSEL WELDS OTHER THAN CLAD/BASE METAL INTERFACE"

3IR-5, Revision 0

EPRI Report NP-6273, "Accuracy of Ultrasonic Flaw Sizing Techniques for Reactor Pressure Vessels," dated March 1989, contains a comparative analysis of sizing accuracy for several different techniques. The results show that UT flaw sizing techniques based on tip diffraction are the most accurate. The proposed alternative Appendix VIII UT qualified detection and sizing methodologies use analysis tools based upon echo dynamics and tip diffraction. This methodology is considered more sensitive and accurate than the Section V, Article 4 processes. Procedures, equipment and personnel qualified via the PDI Appendix VIII, Supplement 4 and 6 programs have been demonstrated to have a high probability of detection and are generally considered superior to the techniques employed during earlier Section V, Article 4 RPV examinations. Accordingly, approval of this alternative examination and evaluation process is requested pursuant to 10 CFR 50.55a (a)(3)(i).

7. Duration of Proposed Alternative

The alternative requirements of this request will be applied for the duration of up to and including the last outage of the current 3rd 10-year ISI interval.

8. Precedents

Similar relief requests have been granted to the following plants:

- Second interval relief request 2IR-15 Rev. 0 was approved for Seabrook Station by the NRC in a Safety Evaluation Report dated April 7, 2009 (TAC No. MD9784)

- NRC Safety Evaluation dated October 20, 2004, for Catawba Nuclear Station, Units 1 and 2; McGuire Nuclear Station, Unit 2, and Oconee Nuclear Station, Unit 3, dated July 14, 2004, "Request for Relief for Use of an Alternate to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, for Reactor Vessel Examinations RR-04-GO-002 (TAC Nos. MC3804, MC3805, MC3807, and MC3810)" (ML420040261)

- NRC Safety Evaluation dated August 2, 2005, for Browns Ferry Units 1, 2 and 3; Sequoyah Nuclear Plant Units 1 and 2; and Watts Bar Nuclear Plant Unit 1, "in-service Inspection Program Relief Request PDI-4 (TAC Nos. MC6232, MC6233, MC6234, MC6235, MC6236, and MC6237)" (ML051730487)

Alternative To Inservice Inspection Requirements
3IR-16, Revision 0

10 CFR 50.55a REQUEST
Proposed Alternative in Accordance with 10 CFR 50.55a(g)(5)(iii)

REQUEST FOR RELIEF TO USE AN ALTERNATIVE TO THE DEPTH SIZING QUALIFICATION REQUIREMENT OF ASME SECTION XI, SUPPLEMENT 10 FOR PIPING EXAMINATIONS PERFORMED FROM THE INSIDE SURFACE FOR SEABROOK UNIT 1

ASME Code Components Affected

Code Class:	1
System:	RC
Examination Categories:	R-A, Risk Informed Inservice Inspection Program
ISI Component IDs:	See Table 1

TABLE 1
WELD NUMBERS BY ISI DESIGNATION

Item	Location	Nozzle-to-Safe End Weld	Weld Type
1	RPV "A" Outlet Nozzle @202°	RC RPV-SE-301-121-A	Shop
2	RPV "B" Inlet Nozzle, @247°	RC RPV-SE-302-121-B	Shop
3	RPV "C" Inlet Nozzle, @293°	RC RPV-SE-302-121-C	Shop
4	RPV "D" Outlet Nozzle, @338°	RC RPV-SE-301-121-D	Shop
5	RPV "E" Outlet Nozzle, @22°	RC RPV-SE-301-121-E	Shop
6	RPV "F" Inlet Nozzle, @67°	RC RPV-SE-302-121-F	Shop
7	RPV "G" Inlet Nozzle, @113°	RC RPV-SE-302-121-G	Shop
8	RPV "H" Outlet Nozzle, @158°	RC RPV-SE-301-121-H	Shop

10 CFR 50.55a REQUEST

Proposed Alternative in Accordance with 10 CFR 50.55a(g)(5)(iii)

REQUEST FOR RELIEF TO USE AN ALTERNATIVE TO THE DEPTH SIZING QUALIFICATION REQUIREMENT OF ASME SECTION XI, SUPPLEMENT 10 FOR PIPING EXAMINATIONS PERFORMED FROM THE INSIDE SURFACE FOR SEABROOK UNIT 1

Applicable Code Edition and Addenda

Seabrook Station (Seabrook) is currently in the 3rd 10-year In-service Inspection (ISI) interval. The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) of record for the current 10-year ISI interval is Section XI, 2004 Edition (Reference 1).

Applicable Code Requirement

The examination of Class 1 piping welds are required to be performed using procedures, personnel and equipment qualified to the criteria of the applicable ASME Code, Section XI, Appendix VIII, Supplements. The applicable supplement to this relief is 10, "QUALIFICATION REQUIREMENTS FOR DISSIMILAR METAL PIPING WELDS".

Paragraph 3.2, "Sizing Acceptance Criteria," Subparagraph (b) of Supplement 10, states that the "examination procedures, equipment, and personnel are qualified for depth-sizing when the RMS [root mean square] error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125-inch (3.2mm).

Code Case N-695, "Qualification Requirements for Dissimilar Metal Piping Welds, Section XI, Division 1 ", provides alternative requirements to Appendix VIII, Supplement 10. Paragraph 3.3(c) of Code Case N-695 states, "Examination procedures, equipment, and personnel are qualified for depth-sizing when the RMS error of the flaw depth measurements, as compared to the true flaw depths, do not exceed 0.125-in. (3 mm)". Code Case N-695 is unconditionally approved for use through Regulatory Guide 1.147, "In-service Inspection Code Case Acceptability, ASME Section XI, Division 1," Revision 16.

Impracticality of Compliance

Seabrook is performing volumetric examination of the RPV nozzle-to-safe end dissimilar metal (DM) welds from the inside surface during the upcoming ten-year RPV ISI. Seabrook will implement the NRC approved alternative requirements of Code Case N-695 for the qualification of procedures and personnel for examinations performed during the upcoming ten-year RPV ISI.

This relief is being submitted due to the impracticality of meeting the required 0.125- inch RMS value required by Code Case N-695. Code Case N-695 requires that qualified procedures and personnel shall demonstrate a flaw depth sizing error less than or equal to 0.125-inch RMS.

10 CFR 50.55a REQUEST

Proposed Alternative in Accordance with 10 CFR 50.55a(g)(5)(iii)

REQUEST FOR RELIEF TO USE AN ALTERNATIVE TO THE DEPTH SIZING QUALIFICATION REQUIREMENT OF ASME SECTION XI, SUPPLEMENT 10 FOR PIPING EXAMINATIONS PERFORMED FROM THE INSIDE SURFACE FOR SEABROOK UNIT 1

The nuclear power industry has attempted to qualify personnel and procedures for depth sizing examinations performed from the inside surface of dissimilar metal welds (Supplement 10, Code Case N-695) since November 2002. To date, no personnel or procedure has achieved less than or equal to the ASME Code required 0.125-inch RMS error. This has been verified by Seabrook in Reference 2.

The inability of examination procedures to achieve the required RMS value is primarily due to a combination of factors such as surface condition, scan access, base materials and the dendritic structure in the welds themselves. Combination of these factors has proven too difficult for procedures and personnel to achieve an RMS value that meet current Code requirements or Code Case N-695.

Burden Caused by Compliance

The most recent attempt at achieving 0.125-inch RMS was in early 2008. This attempt, as well as previous attempts, did not achieve the required RMS values for personnel or procedures. The qualification attempts have been substantial. The attempts have involved multiple; vendors, ultrasonic instruments, personnel and flaw depth sizing methodologies, all of which have been incapable of achieving the 0.125-inch RMS value.

The process of qualification for this type of flaw sizing is well established. The cost and effort involved to perform a successful demonstration is quantifiable when a capable technique is available. However, when a capable technique is not available, the costs and effort required for a successful demonstration cannot be easily quantified.

Proposed Alternative And Basis for Use

Seabrook proposes using an alternative depth-sizing RMS error value greater than the 0.125-inch RMS error value stated in Code Case N-695 for the examination of welds listed in Table 1 of this relief request. Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested to use an alternative that will provide an acceptable level of quality and safety.

As an alternative to the required RMS error stated in Code Case N-695 for procedure and personnel depth sizing, Seabrook will add the difference between the required RMS value of 0.125-inch RMS and the actual RMS value achieved by our inspection vendor to the flaw depth as determined during flaw sizing. The inspection vendor chosen has achieved an RMS of 0.189" for Supplement 10 welds.

10 CFR 50.55a REQUEST
Proposed Alternative in Accordance with 10 CFR 50.55a(g)(5)(iii)

REQUEST FOR RELIEF TO USE AN ALTERNATIVE TO THE DEPTH SIZING QUALIFICATION REQUIREMENT OF ASME SECTION XI, SUPPLEMENT 10 FOR PIPING EXAMINATIONS PERFORMED FROM THE INSIDE SURFACE FOR SEABROOK UNIT 1

Applying the difference between the required RMS error and the achieved RMS error to the actual flaw size, will ensure a conservative flaw bounding approach and provide an acceptable level of quality and safety.

Duration of Proposed Alternative

The alternative requirements of this request will be applied for the remaining duration of the current 3rd 10-year ISI interval.

Precedents

Similar relief requests have been granted to the following plants:

- NRC to Southern Nuclear Operating Company Inc. letter, "Joseph M. Farley Nuclear Plant Unit 1, and Vogtle Electric Generating Plant, Units 1 and 2 - Evaluation of Relief Request ISI-GEN-ALT-06-02," (TAC Nos. MD 2482, MD2483 and MD2484), dated September 29, 2006, (ML062770359)

- NRC to Exelon Generating Company, LLC letter, "Braidwood Station, Units 1 and 2 - Relief Request (12R-49) Regarding In-service Inspection Program Alternative Method (TAC Nos. MD5996 and MD5997)," dated November 8, 2007, (ML072760048)

References

1. ASME Code, Section XI, 2004 Edition.
2. EPRI Letter Dated 6/30/08, "Summary of WESDYNE International, LLC Supplements 2 & 10 depth sizing results obtained from the inside surface.