NEXTera ENERGY SEABROOK

January 4, 2022

Docket No. 50-443
10 CFR 50.55a(g)

SBK-L-21126

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20582

Seabrook Station
Fourth 10 Year Interval - Inservice Inspection (ISI) Program Plan

The Fourth 10-Year Inservice Inspection (ISI) Interval for NextEra Energy Seabrook, LLC (NextEra Seabrook) began on August 19, 2020 and ends on August 18, 2030. Pursuant to 10 CFR 50.55a(g)(4)(ii) the ISI Program Plan for NextEra Seabrook is based on the requirements of Section XI of the ASME Boiler and Pressure Vessel Code, Division 1, 2013 Edition.

NextEra Seabrook is hereby submitting the Fourth 10 Year ISI Program Plan. The Program Plan is provided within the Enclosure. The planned Relief Requests for the Fourth 10 Year ISI Interval will be submitted under different correspondence, at a later date.

Should you have any questions concerning this response, please contact Mr. Brian O'Callahan, Programs Engineering Manager, at (603) 773-7046.

Sincerely,

NextEra Energy Seabrook, LLC

Brian Booth

Brian Booth
Nuclear Site Vice President – Seabrook Nuclear Power Station

Enclosure

cc:

NRC Region I Administrator
NRC Project Manager
NRC Senior Resident Inspector

ENCLOSURE TO SBK-L-21126

Fourth 10 Year Inservice Inspection (ISI) Program Plan

NextEra Energy
Nuclear Engineering Department
Fleet Programs Engineering Group
Inspection Section
700 Universe Blvd
Juno Beach, FL 33408

Fourth Inservice Inspection Interval Program Plan

For

Seabrook Station
Unit 1

P.O. Box 300
Seabrook, New Hampshire 03847

SBK-1 Commercial Service Date:

August 19, 1990

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Unit 1 - 50-443

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Prepared by: _____
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Manager- Site Program Engineering Group

Record of Revision

Rev No.	Date	Affected Pages	Reason for Revision
0	September 30, 2021	Entire Document	Initial Fourth 10-Year Inspection Interval Program Plan as required by 10CFR50.55a(g)(4)

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Tables

Appendices

Abbreviations

ANII	Authorized Nuclear Inservice Inspector	N/A	Not Applicable
ANSI	American Nuclear Standard Institute	NDE	Nondestructive Testing
AOV	Air Operated Valve	NPS	Nominal Pipe Size
ASME	American Society of Mechanical Engineers	OD	Outside Diameter
B&PV	Boiler and Pressure Vessel Code	PDS	Program Boundary Drawings
BC	Branch Connection	PDI	Performance Demonstration Initiative
BMV	Bare Metal Visual	P&ID	Piping and Instrumentation Diagram
CRDM	Control Rod Drive Mechanism	PSI	Preservice Inspection
CFR	Code of Federal Regulations	PT	Liquid Penetrant Testing (Examination)
CS	Charging System	PWR	Pressurized Water Reactor
CHR	Containment Heat Removal	PZR	Pressurizer
CPS	Code Programs Section	QA	Quality Assurance
CRV	Code Required Volume	QC	Quality Control
CBS	Containment Spray System	QP	Quality Procedure
CV	Control Valve	RC	Reactor Coolant System
CS	Chemical and Volume Control System	RCP	Reactor Coolant Pump
ECCS	Emergency Core Cooling System	RH	Residual Heat Removal
ECT	Eddy Current Testing	RIS_B	Risk-Informed/Safety-Based
ENG	Engineering	RGX	Regenerative Heat Exchanger
FPE	Fleet Program Engineering	RPV	Reactor Pressure Vessel
FPL	Florida Power & Light Company	SB	SG Blowdown System
FPS	Fuel Pool System	SBK	Seabrook Station Unit 1
FSAR	Final Safety Analysis Report	SD	Structural Discontinuity
FW	Feedwater System	SFHX	Spent Fuel Heat Exchanger
HPSI	High Pressure Safety Injection	SG	Steam Generator
HS	High Stress	SGBD	Steam Generator Blowdown
HX	Heat Exchanger	SRP	Standard Review Plan
ID	Identification	SI	Safety Injection System
IE	Inspection and Enforcement	t	Thickness of Component, Pipe, etc.
ISI	Inservice Inspection	TE	Terminal End
IST	Inservice Testing	UFSAR	Updated Final Safety Analysis Report
LER	License Event Report	USNRC	United States Nuclear Regulatory Commission
LS	Longitudinal Seam Weld	UT	Ultrasonic Testing (Examination)
MOV	Motor Operated Valve	VT	Visual Testing (Examination)
MRP	Material Reliability Program	PWR	Pressurized Water Reactor
MSIV	Main Steam Isolation Valve	PZR	Pressurizer
MS	Main Steam System	QA	Quality Assurance
MT	Magnetic Particle Testing (Examination)	QC	Quality Control

Abstract

This document describes the Class 1, 2, and 3 Inservice Inspection (ISI) Program Plan Fourth 10-Year Inservice Inspection Interval for Seabrook Station Unit 1, (Seabrook Station).

The Program Plan was prepared to meet the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, Division 1, 2013 Edition and 10CFR50.55a for Class 1, 2, and 3 components and component supports. This Program Plan is subject to the conditions listed in 10CFR50.55a (b) (2).

The Program Plan identifies those components and/or systems and their supports that are subject to examination and testing.

Where applicable, ASME Code Cases are incorporated. Code Cases implemented are either approved through publication in 10CFR50.55a, NRC Regulatory Guide 1.147 or are included in a Relief Request.

Other alternatives to the Code requirements have been included as relief requests, or they reference specific NRC regulations. Areas where Code compliance is not possible are also included as relief requests, along with proposed alternatives.

This document implements a Risk-Informed selection criterion for Examination Category B-F, B-J, C-F-1 and C-F-2 piping welds and Examination Categories C-A and C-B for Class 2 vessel welds in accordance with ASME Code Case N-716-1. Note that although Code Case N-716-1 also addresses Examination Category C-D bolting, Seabrook does not have any components in this Examination Category.

The ISI Programs for Class MC Metal Containment, Inservice Pressure Tests, Class CC Concrete Containment, and Snubber Examinations are covered under separate plant programs. General requirements for these programs are included for completeness.

This document also includes inservice augmented examinations required by Seabrook regulatory commitments, 10CFR50.55a (g) (6) (ii), industry initiatives and plant original equipment Manufacturers (OEM) such as Westinghouse Technical Publications. The augmented inservice Examinations applicable to Seabrook Station Unit 1 are identified in Section 9.0.

1.0 Introduction

Seabrook Station Unit 1 (SBK-1) is a four loop Pressurized Water Nuclear Power Plant. NextEra Energy Seabrook, LLC (NextEra Energy) is the Owner of Record.

1.1 ISI Program Development

This document details the Inservice Inspection Program Plan of Class 1, 2, and 3 components and component supports for the Fourth 10-Year Inservice Inspection Interval for Seabrook Station Unit 1.

The ISI Schedule Tables for examinations of the major components of Seabrook Station Unit 1 are located in the Seabrook Station Unit 1 ISI data management system (IDDEAL). The ISI database management system includes tables that have brief descriptions of each component subject to examination, the required code references, calibration blocks, NDE procedures, weld/support location maps (isometric drawings) and any other pertinent information that is useful for determining examination requirements.

Inservice examination of component and system pressure tests conducted during successive 120-month inspection intervals must comply with the requirements of the latest edition and addenda of the Code incorporated by reference in 10CFR50.55a 12 months prior to the start of the 120-month inspection interval. These requirements are subject to the limitations and modifications listed within 10CFR50.55a.

This Program Plan reflects the Inservice Inspection requirements of ASME Section XI, Division 1, 2013 Edition as modified by 10CFR50.55a.

1.2 Other ISI Programs

This document does not address every aspect of Inservice Inspection. The following details the examination and testing requirements of those parts covered by other documents.

1.2.1 Inservice Testing Program (IST)

The program for Inservice Testing of Class 1, Class 2, and Class 3 Pumps and Valves is covered by the Seabrook Station Unit 1 Inservice Testing (IST) Program, which is submitted and approved separately.

1.2.2 Steam Generator (SG) Eddy Current (ET) Program

The Steam Generator (SG) Eddy Current Testing (ET) Program is governed by the requirements of Seabrook Station Technical Specifications and is administered separately.

1.2.3 Snubber Program

The program for the examination and testing of safety-related snubbers is addressed by Seabrook Station Unit 1 plant procedures.

1.2.4 System Pressure Test Program

The program for Inservice System Pressure Testing of ASME Code Class 1, Class 2, and Class 3 components and systems is addressed by Seabrook Station Unit 1 plant procedures.

1.2.5 Repair and Replacement Program

The Repair and Replacement Program for ASME Code Class 1, 2, 3 components, component supports and ASME Code Class MC and CC components is addressed by Seabrook Administrative Procedure MA 6.2.

1.2.6 Metal Containment Inservice Inspection Program (IWE)

The Metal Containment Inservice Inspection Program, 3rd Interval-IWE-SBK-1-Program Plan, controls the examination of Code Class MC components in accordance with ASME Section XI, Subsection IWE and is administered separately.

1.2.7 Concrete Containment Inservice Inspection Program (IWL)

The Concrete Containment Inservice Inspection Program, 3rd Interval-IWL-SEA-Prog Plan controls the examination of Code Class CC components in accordance with ASME Section XI, Subsection IWL and is administered separately.

1.3 Construction Permit

The Construction permit for Seabrook Station Unit 1 was issued on July 7, 1976.

1.4 Operating License and Commercial Service Dates

The Operating License for Seabrook Station Unit 1 was issued on March 15, 1990. The Commercial Service Date for Seabrook Station Unit 1 is August 19, 1990.

1.5 Background

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 Appendix C. 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.

Seabrook Station Unit 1 has implemented the requirements of different Editions and Addenda of Section XI. The applicable Edition of Section XI was mandated by changes to 10CFR 50.55a at 10-year intervals or earlier.

1.5.1 Preservice Examinations

The Preservice Examination was conducted in accordance with the ASME Boiler and Pressure Vessel (B&PV) Code, Section XI, 1977 Edition through 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.

1.5.2 First Inservice Inspection Interval

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.

1.5.3 Second Inservice Inspection Interval

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.

1.5.4 Third Inservice Inspection Interval

The third 10-Year ISI Interval began on August 19, 2010 and ended on August 18, 2020. The applicable ASME Section XI Code of Record was the 2004 Edition.

1.5.5 Fourth Inservice Inspection Interval

The Fourth Ten Year Inservice Inspection Interval is being conducted in accordance with ASME Section XI, Division 1, 2013 Edition as modified by 10CFR50.55a.

The Fourth Ten Year Inservice Inspection Interval is divided into three successive Inspection periods as determined by calendar years of plant service within the interval. The dates of the fourth 10-year Inservice Inspection Interval and Periods are as follows:

Table 1 Fourth Inservice Inspection Interval		
Period	**Start**	**End**
4th Interval	August 19, 2020	August 18, 2030
1st Period	August 19, 2020	August 18, 2023
2nd Period	August 19, 2023	August 18, 2027
3rd Period	August 19, 2027	August 18, 2030

1.6 Applicable Editions and Addenda to Section XI

In accordance with 10CFR50.55a(g)(4)(ii), the version of Section XI in effect one year prior to the start of the Seabrook Station 4th ISI Interval, August 19, 2019, is the applicable Section XI Code of Record for Inservice Inspection. Accordingly, NextEra Energy Seabrook will implement the requirements for Class 1, 2, and 3 components and component supports at Seabrook Station included in ASME Section XI, Division 1, 2013 Edition.

Portions of the ISI Program Plan may be based on other Editions and Addenda of Section XI, ASME Code Cases, Relief Requests, the Code of Federal Regulations, Regulatory Guides, Plant Technical Specifications, and commitments. Where this has occurred, it is documented within this Program Plan.

1.6.1 10CFR50.55a Code of Federal Regulations Conditions

The following mandatory and optional Code of Federal Regulations conditions are included in 10CFR50.55a as of the time of this revision. Only those 10CFR50.55a conditions applicable to the ASME Section XI, 2013 Edition for nondestructive examination requirements of Class 1, 2, and 3 components and component supports are listed. The conditions for concrete and metal containment components are listed for completeness only and are not applicable to this Program Plan. These conditions were reviewed for inclusion in the ISI Program Plan and dispositioned as follows:

1.6.1.1 Seabrook Station will not utilize the option in 10CFR50.55a(b)(2)(ii) to examine Class 1 piping per ASME Section XI, 1974 Edition with the Summer 1975 Addenda. Seabrook Station will implement a Risk-Informed Inservice Inspection (RI-ISI) application for Class 1 and 2 piping; therefore, this modification is not applicable.

1.6.1.2 The Seabrook Station design includes a concrete containment subject to ASME Section XI, Subsection IWL requirements. Therefore, the mandatory conditions in 10CFR50.55a (b)(2)(viii)

apply to Seabrook Station. Examination of concrete containment components is addressed under the Concrete Containment ISI Program, 3rd Interval-IWL-SEA-Prog Plan.

1.6.1.3 The Seabrook Station design includes a metal shell (or liner) subject to ASME Section XI, Subsection IWE requirements. Therefore, the mandatory conditions in 10CFR50.55a (b)(2)(ix) apply to Seabrook Station. In addition, Seabrook Station will implement the optional conditions for the maximum direct examination distance for remote visual examinations presented in 10CFR50.55a (b)(2)(ix)(B). The examination of metal containment components is addressed under Containment Building Metallic Liner Inservice Inspection Program, 3rd Interval-IWE-SBK-1-Program Plan.

1.6.1.4 As required by 10CFR50.55a (b)(2)(x), Seabrook Station will apply the station 10CFR50 Appendix B Quality Assurance Program of NQA-1 to Section XI activities.

1.6.1.5 As required by 10CFR50.55a(b)(2)(xii), Seabrook Station may apply the provisions of IWA-4660, Underwater Welding for use on irradiated materials with the conditions set forth in 10CFR50.55a(b)(2)(xii)(A) for welding techniques to be used on ferritic material and 10CFR50.55a(b)(2)(xii)(B) for welding techniques to be used on stainless steel material.

1.6.1.6 As allowed by 10CFR50.55a(b)(2)(xiv), for Appendix VIII Qualified Personnel Seabrook Station will use the annual practice requirements in VII-4240 of Section XI Appendix VII in place of the 8 hours of annual hands-on training (when deemed appropriate) as discussed in 10CFR50.55a(b)(2)(xiv). 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.

1.6.1.7 As required by 10CFR50.55a(b)(2)(xviii)(A), Level I and II nondestructive examination personnel at Seabrook Station will be recertified, by examination, on a 3-year interval in lieu of the 5-year interval specified in IWA-2314(a) and IWA-2314(b) of the 2013 Edition of Section XI.

1.6.1.8 As required by 10CFR50.55a(b)(2)(xviii)(D), Seabrook Station will not implement the requirements in Appendix VII, Table VII–4110–1 and Appendix VIII, Subarticle VIII–2200 of the 2013 Edition of Section XI. Alternatively, Seabrook Station will implement the requirements in Appendix VII, Table VII–4110–1 and Appendix VIII, Subarticle VIII–2200 in the 2010 Edition of Section XI.

1.6.1.9 As required by 10CFR50.55a(b)(2)(xix), the provisions in IWA-4520(b)(2) and IWA-4521 of the 2013 Edition which allow the

substitution of ultrasonic examination for radiographic examination specified in the Construction Code are not approved for use.

1.6.1.10 As required by 10CFR50.55a(b)(2)(xx)(B), Seabrook Station will apply the nondestructive examination method and acceptance criteria of the 1992 Edition or later of Section III when performing system leakage tests (in lieu of a hydrostatic test) in accordance with IWA–4520 after repair and replacement activities performed by welding or brazing on a pressure retaining boundary. The nondestructive examination and pressure testing may be performed using procedures and personnel meeting ASME Section XI, 2013 Edition.

1.6.1.11 The use of the provision in IWA-2220, "Surface Examination" that allows the use of an ultrasonic examination method is prohibited by 10CFR50.55a (b)(2)(xxii). Based on the RIS_B application on Class 1 and 2 piping welds, Seabrook Station is not required to perform surface examinations on Class 1 and 2 piping welds.

1.6.1.12 As required by 10CFR50.55a(b)(2)(xxv)(B), Seabrook Station will implement the provisions in IWA-4340, Mitigation of Defects by Modification, of the 2013 Edition of Section XI subject to the conditions in 10CFR50.55a(b)(2)(xxv)(B)(1) through (3).

1.6.1.13 As required by 10CFR50.55a(b)(2)(xxvi), Seabrook Station will pressure test mechanical joints in Class 1, 2, and 3 piping and components greater than NPS 1 which are disassembled and reassembled during the performance of a repair and replacement activity requiring documentation on Form NIS-2. The system pressure test and NDE examiners will meet the requirements of the 2013 Edition of Section XI.

1.6.1.14 As required by 10CFR50.55a (b)(2)(xxvii), when performing visual examination in accordance with IWA–5241 of Section XI, 2013 Edition, insulation will be removed from 17–4 PH or 410 stainless steel studs or bolts aged at a temperature below 1100 °F or having a Rockwell Method C hardness value above 30, and from A–286 stainless steel studs or bolts preloaded to 100,000 pounds per square inch or higher.

1.6.1.15 As required by 10CFR50.55a(b)(2)(xxviii), Seabrook Station will use the stated conditions when implementing Equation 2 in ASME Section XI, Appendix A-4300(b)(1).

1.6.1.16 10CFR50.55a (b)(2)(xxix) requires prior NRC authorization to implement Nonmandatory Appendix R, *Risk-Informed Inspection Requirements for Piping.* Because Seabrook Station is utilizing Code Case N-716-1 for Risk-Informed/Safety-Based Inservice Inspection, this condition is not applicable.

1.6.1.17 As required by 10CFR50.55a(b)(2)(xxxi), when installing a mechanical clamping device on an ASME BPV Code class piping system, Appendix W of Section XI will be treated as a mandatory appendix and all of the provisions of Appendix W shall be met for the mechanical clamping device being installed. Additionally, use of IWA–4131.1(d) of the 2013 Edition will not be utilized on small item Class 1 piping and portions of a piping system that form the containment boundary.

1.6.1.18 As required by 10CFR50.55a(b)(2)(xxxii), Seabrook Station will submit to the NRC Summary Reports and Owner's Activity Reports described in IWA–6230 within 90 calendar days of the completion of each refueling outage.

1.6.1.19 As required by 10CFR50.55a (b)(2)(xxxiii), Seabrook Station will not implement paragraph G-2216 in Appendix G of the 2013 Edition of Section XI.

1.6.1.20 As required by 10CFR50.55a (b)(2)(xxxiv), Seabrook Station will implement the conditions in 10CFR50.55a (b)(2)(xxxiv)(A) and (B) when utilizing Nonmandatory Appendix U of the 2013 Edition of Section XI.

1.6.1.21 As required by 10CFR50.55a (b)(2)(xxxv), Seabrook Station will implement the condition in 10CFR50.55a (b)(2)(xxxv)(A) when utilizing Nonmandatory Appendix A of the 2013 Edition of Section XI.

1.6.1.22 As required by 10CFR50.55a(b)(2)(xxxvi), Seabrook Station will obtain NRC approval under 10CFR50.55a(z) before using irradiated T_0 and the associated RT_{T0} in establishing fracture toughness of irradiated materials per paragraph A-4400 of Nonmandatory Appendix A of the 2013 Edition of Section XI.

1.6.1.23 As required by 10CFR50.55a(b)(2)(xxxviii), Seabrook Station will implement the conditions in 10CFR50.55a(b)(2)(xxxviii)(A) and (B) when utilizing Mandatory Appendix III, Supplement 2 of the 2013 Edition of Section XI.

1.6.1.24 As required by 10CFR50.55a (b)(2)(xli), Seabrook Station will not implement the provisions for accepting flaws by analytical evaluation during preservice inspection in IWB–3112(a)(3) and IWC–3112(a)(3) of Section XI, 2013 Edition.

1.6.1.25 As required by 10CFR50.55a(b)(2)(xlii), Seabrook Station will implement the conditions in 10CFR50.55a(b)(2)(xlii)(A) and (B) when applying Table IWB–2500–1, Examination Category B–F, Item Nos. B5.11 and B5.71 requirements of the 2013 Edition of Section XI.

1.6.1.26 As required by 10CFR50.55a(g)(6)(ii)(D)(1), Seabrook Station will augment the inservice inspection program by implementing the mandatory examination criteria in ASME Code Case N–729–6 subject to the conditions specified in paragraphs 10CFR50.55a(g)(6)(ii)(D)(2) through 10CFR50.55a(g)(6)(ii)(D)(8) regarding reactor vessel head inspections.

1.6.1.27 As required by 10CFR50.55a(g)(6)(ii)(E)(1), Seabrook Station will augment the inservice inspection program by implementing the mandatory examination requirements of ASME Code Case N–722-1 subject to the conditions specified in paragraphs (g)(6)(ii)(E)(2) through (4) regarding visual inspections of reactor coolant pressure boundaries.

1.6.1.28 As required by 10CFR50.55a (g)(6)(ii)(F)(1), Seabrook Station will augment the inservice inspection program by implementing the mandatory examination requirements of ASME Code Case N–770-5, subject to the conditions specified in paragraphs (g)(6)(ii)(F)(2) and (4) through (10), and (12) through (16) regarding examination requirements for Class 1 piping and nozzle dissimilar-metal butt welds.

1.7 System Classification

Seabrook Station Unit 1 System Classification is described in UFSAR Section 3.2.2, which states, “Fluid system components important to safety are classified in accordance with the ANSI N18.2a-1975, "Revision and Addendum to Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants." This classification system is compatible with the requirements of NRC Regulatory Guide 1.26 and is submitted as an alternate acceptable method of meeting the intent of Regulatory Guide 1.26.”

1.7.1 ASME Code Class

The ASME Code Class for Seabrook Station systems and components is captured in UFSAR Table 3.2.2. Specific code classifications and associated boundaries are depicted on the plant Piping and Instrument Drawings (P&IDs) listed in Appendix C. Safety Class flags shown on these P&IDs are explained on PID-LEGEND2. 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.

1.7.2 Optional Construction

Optional construction of a component within a system boundary to a classification higher than the minimum class established in the component design specification does not affect the overall system classification by which the applicable rules of Section XI are determined.

1.7.3 Containment Penetrations

Portions of piping penetrating the containment vessel which are required to be constructed to Class 1 or 2 rules for piping, and which may differ from the classification of the balance of the piping system, may not affect the overall system classification that determines the applicable rules of Section XI.

1.7.4 Class MC and Class CC Components

A 10CFR50.55a Final Rule dated August 8, 1996, mandated the inservice inspection of Class MC components in accordance with ASME Section XI, Subsection IWE. The Seabrook Station Unit 1 program for Subsection IWE, *3rd Interval-IWE-SBK-1-Prog Plan*, examinations specifically defines the classification of those areas examined.

A 10CFR50.55a Final Rule dated August 8, 1996, mandated the inservice inspection of Class CC components in accordance with ASME Section XI, Subsection IWL. The Seabrook Station Unit 1 program for Subsection IWL, *3rd Interval-IWL-SEA-Prog Plan*, examinations specifically defines the classification of those areas examined.

1.8 Inspection Program Plan

Examinations for Class 1, 2, and 3 components and component supports are scheduled in accordance with ASME Section XI and the Inservice Inspection Program. This incorporates the criteria of IWB-2411, IWC-2411, IWD-2411, IWF-2410 and Tables IWB-2411-1, IWC-2411-1, IWD-2411-1 and IWF-2410-1 for the examination of Class 1, 2, and 3 components and their supports, respectively. Examinations are scheduled based upon previous 10-Year intervals, to the extent practical and within the limits established in IWA-2420. Class 1 and 2 Examination Categories B-F, B-J, C-F-1 and C-F-2 piping weld examinations and Class 2 Category C-A and C-B vessel weld examinations are based on Risk-Informed/Safety-Based selection criteria in accordance with Code Case N-716-1.

The 4th Interval Seabrook Station ISI schedule tables for examinations of the major components are located in the ISI scheduling database (IDDEAL). The ISI schedule tables for examinations provides a brief description of each component subject to examination, the required Code references, and any other pertinent information that is useful for determining examination requirements. The ISI scheduling database (IDDEAL) satisfies the requirements of IWA-2420(b)(1) through (6) respectively and is updated on an ongoing basis.

1.9 Regulatory Guides

The Regulatory Guides determined to be applicable to Seabrook Station Unit 1 for purposes of this ISI Program Plan are listed below:

Table 2 USNRC Regulatory Guides	
1.14	Reactor Coolant Pump Flywheel Integrity
1.26	Quality Group Classifications
1.147	Section XI Code Case Acceptability
1.193	ASME Code Cases Not Approved for Use
1.65	Materials and Inspections for Reactor Vessel Closure Studs

1.10 ASME Section XI Code Cases

ASME Section XI Code Cases applicable to the ISI Plan are shown below. Each of the Code Cases has been approved or conditionally approved and listed in USNRC Regulatory Guide 1.147. Code Cases not listed in Reg Guide 1.147 but implemented via a relief request or mandated by 10CFR50.55a, the implemented revision may continue to be utilized until the end of the current interval, even if later revisions of the code case is approved during that interval.

Table 3 Applicable Code Cases	
Number	**Code Case Title**
N-432-1	Repair Welding Using Automatic or Machine Gas Tungsten-Arc Welding (GTAW) Temper Bead Technique, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-532-5	Repair/Replacement Documentation Requirements and Inservice Summary Report Preparation and Submission, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-561-2	Alternative Requirements for Wall Thickness Restoration of Class 2 and High Energy Class 3 Carbon Steel Piping, Section XI, Division 1 (Approved with conditions in Reg. Guide 1.147, Rev. 19)
N-562-2	Alternative Requirements for Wall Thickness Restoration of Class 3 Moderate Energy Carbon Steel Piping, Section XI, Division 1 (Approved with conditions in Reg. Guide 1.147, Rev. 19)

Table 3 Applicable Code Cases	
Number	**Code Case Title**
N-593-2	Alternative Examination Requirements for Steam Generator Nozzle to Vessel Welds, Section XI, Division 1 (Approved with conditions in Reg. Guide 1.147, Rev. 19)
N-597-3	Requirements for Analytical Evaluation of Pipe Wall Thinning (Approved with conditions in Regulatory Guide 1.147, Rev. 19)
N-613-2	Ultrasonic Examination of Full Penetration Nozzles in Vessels, Examination Category B-D, Reactor Nozzle-to-Vessel Welds and Nozzle Inside Radius Section, Figs. IWB-2500-7(a), (b), (c) and (d) Section XI, Division 1. (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-639	Alternative Calibration Block Material (Approved with conditions in Regulatory. Guide 1.147, Rev. 19)
N-648-2	Alternative Requirements for Inner Radius Examination of Class 1 Reactor Vessel Nozzles, Section XI, Division 1 (Approved with condition in Regulatory Guide 1.147. Rev. 19)
N-651	Ferritic and Dissimilar Metal Welding Using SMAW Temper Bead Technique Without Removing the Weld Bead Crown for the First Layer Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-653-1	Qualification Requirements for Full Structural Overlaid Wrought Austenitic Piping Welds, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-661-3	Alternative Requirements for Wall Thickness Restoration of Class 2 and 3 Carbon Steel Piping for Raw Water Service, Section XI, Division 1 (Approved without conditions in Reg. Guide 1.147, Rev. 19)
N-666-1	Weld Overlay of Class 1, 2, and 3 Socket Welded Connections (Approved with conditions in Regulatory Guide 1.147, Rev. 19)
N-695-1	Qualification Requirements for Dissimilar Metal Piping Welds (Approved with conditions in Regulatory Guide 1.147, Rev. 19)
N-696-1	Qualification Requirements for Mandatory Appendix VIII Piping Examinations Conducted From the Inside Surface (Approved with conditions in Regulatory Guide 1.147, Rev. 19)
N-711-1	Alternative Examination Coverage Requirements for Examination Category B-F, B-J, C-F-1, C-F-2, and R-A Piping Welds (Approved with conditions in Regulatory Guide 1.147, Rev. 19)

Table 3 Applicable Code Cases	
Number	**Code Case Title**
N-716-1	Alternative Classification and Examination Requirements (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-722-1	Additional Requirements for PWR Pressure Retaining Welds in Class 1 components Fabricated With Alloy 600/82/182 Materials, Section XI, Division 1 [Mandated with conditions in 10CFR50.55a(g)(6)(ii)(E)]
N-729-6	Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds, Section XI, Division 1 [Mandated with conditions in 10CFR50.55a(g)(6)(ii)(D)]
N-731	Alternative Class 1 System Leakage Test Pressure Requirements, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-733	Mitigation of Flaws in NPS 2 (DN 50) and Smaller Vessels and Piping By Use of a Mechanical Connection Modification (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-735	Successive Inspections of Class 1 and 2 Piping Welds (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-747	Reactor Vessel Head-to-Flange Weld Examinations (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-751	Pressure Testing of Containment Penetration Piping (Approved with conditions in Regulatory Guide 1.147, Rev. 19)
N-770-5	Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Butt Welds Fabricated with UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities [Mandated with conditions in 10CFR50.55a(g)(6)(ii)(F)]
N-771	Alternative Requirements for Additional Examinations of Class 2 or 3 Items, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-773	Alternative Qualification Criteria for Eddy Current Examinations of Piping Inside Surfaces (Approved without conditions in Regulatory Guide 1.147, Rev. 19)

Table 3 Applicable Code Cases	
Number	**Code Case Title**
N-786-1	Alternative Requirements for Sleeve Reinforcement of Class 2 and 3 Moderate-Energy Carbon Steel Piping, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-789-2	Alternative Requirements for Pad Reinforcement of Class 2 and 3 Moderate-Energy Carbon Steel Piping, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-798	Alternative Pressure Testing Requirements for Class 1 Piping Between the First and Second Vent, Drain, and Test Isolation Devices, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-800	Alternative Pressure Testing Requirements for Class 1 Piping Between the First and Second Injection Valves, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-805	Alternative to Class 1 Extended Boundary End of Interval or Class 2 System Leakage Testing of the Reactor Vessel Head Flange O-Ring Leak-Detection System, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-823-1	Visual Examination (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-825	Alternative Requirements for Examination of Control Rod Drive Housing Welds, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-830	Direct Use of Master Fracture Toughness Curve for Pressure-Retaining Materials of Class 1 Vessels (Approved with conditions in Regulatory Guide 1.147, Rev. 19)
N-839	Similar and Dissimilar Metal Welding Using Ambient Temperature SMAW Temper Bead Technique (Approved without conditions in Regulatory Guide 1.147, Rev. 19)
N-843	Alternative Pressure Testing Requirements Following Repairs or Replacements for Class 1 Piping Between the First and Second Injection Isolation Valves (Approved with conditions in Regulatory Guide 1.147, Rev. 19)
N-845	Qualification Requirements for Bolts and Studs, Section XI, Division 1 (Approved without conditions in Regulatory Guide 1.147, Rev. 19)

Table 3 Applicable Code Cases	
Number	**Code Case Title**
N-854	Alternative Pressure Testing Requirements for Class 2 and 3 Components Connected to the Class 1 Boundary (Approved without conditions in Regulatory Guide 1.147, Rev. 19)

1.11 Plant Life Extension

The purpose of the Renewed License Program (EN-AA-106) is to define the roles and responsibilities for the implementation of the License Renewal process and the actions that need to be completed for each unit after the Renewed Operating License is issued to include the post approval inspections and operation in the Period of Extended Operation (PEO).

The ISI Program will implement the NextEra Energy commitments to manage the effects of aging for systems/structures/components within the scope of license renewal. The Section XI Plan is credited as an aging management program for license renewal. As such, changes to the Section XI Program shall consider License Renewal requirements described in the Safety Evaluation Report Related to the License Renewal of Seabrook Station.

1.12 Successive Examinations

The sequence of component examinations may be modified in accordance with the requirements of ASME Section XI, IWB-2420(a), IWC-2420(a), IWD-2420(a) and IWF-2420(a). This allows NextEra to alter the sequence of examinations to allow the examination of several components in an area during one outage instead of over several outages. This will reduce costs and radiation exposure. The percentage requirements of IWB-2411, IWC-2411, IWD-2411, and IWF-2410 will be satisfied. Due to the implementation of the Risk-Informed/Safety-Based ISI Program, the scheduling of Class 1 and 2 piping weld examinations will follow Code Case N-716-1 requirements, as the selection criteria are different than those stated in ASME Section XI. However, the percentage requirements of IWB-2411 and IWC-2411 for those components selected will be maintained. The modified examination schedule is designed to optimize the performance of work within the plant to reduce radiation dose, eliminate interference with other work and reduce costs.

1.13 NDE and Personnel Qualification/Certification

All NDE will be performed in accordance with the requirements of ASME Section XI, 2013 Edition with the following modifications as required by 10CFR50.55a.

1.13.1 Alternative Examinations (IWA-4520(b)(2) and IWA-4521)

Seabrook Station will not apply the provisions in IWA–4520(b) (2) and IWA–4521 of the 2013 Edition allowing the substitution of ultrasonic examination for radiographic examination specified in the Construction Code. [Reference 10CFR50.55a (b)(2)(xix)].

1.13.2 System Leakage Tests for Repair Replacement Activities

The NDE provision in IWA-4520(a)(2) requires use of the acceptance criteria of the 1992 Edition or later of Section III when performing system leakage tests after repair and replacement activities performed by welding or brazing on a pressure retaining boundary, [Reference 10CFR50.55a(b)(2)(xx)(B)].

1.13.3 Surface Examinations

The provision in IWA-2220, "Surface Examination" allows the use of an ultrasonic examination method. The use of this provision is prohibited, per 10CFR50.55a (b)(2)(xxii).

1.13.4 Certification and Recertification (IWA-2314)

Level I and II nondestructive examination personnel and personnel qualified under the American Society for Nondestructive Testing Central Certification Program and ANSI/ASNT CP-189 shall be recertified by examination on a 3-year interval in lieu of the 5-year interval specified in IWA-2314(a) and IWA-2314(b), [Reference 10 CFR 50.55a(b)(2)(xviii)(A)].

1.13.5 Appendix VIII Requirements

1.13.5.1 10CFR50.55a(b)(2)(xiv) requires that all personnel qualified for performing ultrasonic (UT) examinations in accordance with Appendix VIII shall receive additional annual hands-on training. This requirement consists of at least eight hours of hands on training on samples containing cracks no earlier than six months prior to performing examinations at a licensee's facility. NextEra Energy will comply with these additional training requirements for personnel performing Section XI Appendix VIII, UT examinations. NextEra Energy may also may use the annual practice requirements in VII–4240 of Appendix VII of Section XI in place of the 8 hours of annual hands-on training provided that the supplemental practice is performed on material or welds that contain cracks, or by analyzing prerecorded data from material or welds that contain cracks. In either case, training must be completed no earlier than 6 months prior to performing ultrasonic examinations at a licensee's facility.

1.13.5.2 In September 1999, 10CFR50.55a incorporated an expedited

implementation schedule for ASME Section XI, Appendix VIII. NextEra Energy implemented the requirements in accordance with the expedited schedule within the third 10-year interval for Seabrook Station. For the fourth 10-year interval, NextEra Energy will implement the requirements of ASME Section XI, Appendix VII and VIII as modified by 10CFR50.55a.

2.0 Risk-Informed/Safety-Based (RIS_B) ISI Requirements

2.1 Seabrook Station Unit 1 is continuing to implement an alternative Risk-Informed/Safety-Based (RIS_B) Inservice Inspection Program for Class 1 and 2 piping welds and has extended this alternative to include Class 2 vessel welds in accordance with ASME Section XI Code Case N-716-1.

2.2 During the Third Interval the Seabrook Risk-Informed/Safety-Based ISI Program was developed based on the Electric Power Research Institute (EPRI) Topical Report (TR) 112657 Rev. B-A, [Ref. 18.30], with identified differences, and with additional guidance taken from ASME Code Case N-716 [Ref. 18.31]. By letter dated November 7, 2011 (Accession No. ML11319A016), supplemented by letter dated March 8, 2012 (Accession No. ML12074A111), NextEra Energy Seabrook Station (Seabrook) submitted Request for Alternative 3AR-1 to the NRC, requesting relief from the ASME Section XI Code examination requirements for Class 1 and Class 2 piping weld (Examination Categories B-F, B-J, C-F-1, and C-F-2) inservice inspections by implementing a Risk-Informed, Safety-Based Inservice Inspection (RIS_B) Program. The NRC published a Safety Evaluation dated June 21, 2012 (Accession No. ML121320552) authorizing the use of a Risk-Informed, Safety-Based inservice inspection (RIS_B) program for the third 10-year ISI interval at Seabrook.

2.3 For the Fourth Interval the RIS_B Program implemented ASME Code Case N-716-1 [Ref. 18.32] which provides alternative criteria for the examination of Class 2 vessel welds (Examination Categories C-A and C-B) as well as Class 1 and Class 2 piping weld (Examination Categories B-F, B-J, C-F-1, and C-F-2). Code Case N-716-1 also provides provisions for Class 2 bolting (Examination Category C-D), but Seabrook does not have any components in this Examination Category.

2.4 Code Case N-716-1 is acceptable without conditions in Regulatory Guide 1.147, Rev. 19 [Ref. 18.5]. As a result, a Relief Request is not required to implement the RIS_B Program for the Fourth Interval.

2.5 The RIS_B Program is a living program that is required to be monitored continuously for changes that could impact the basis for which welds are selected for examination. Monitoring encompasses numerous facets, including the review of changes to the plant configuration, changes to operations that could affect the degradation assessment, a review of NDE results, a review of site failure information from the corrective action program, and a review of industry failure information from industry operating experience (OE). Also included is a review of PRA changes for their impact on the RIS_B program. These reviews provide a feedback loop such that new relevant information is obtained that will ensure that the appropriate identification of HSS piping locations selected for examination is maintained. As a minimum, this review will be conducted on an ASME period basis. In addition, more frequent

adjustment may be required as directed by NRC Bulletin or Generic Letter requirements, or by industry and plant-specific feedback. RIS_B Living Program Evaluations and Updates are performed in accordance with NEI 04-05, "Living Program Guidance To Maintain Risk-Informed Inservice Inspection Programs For Nuclear Plant Piping Systems" [Ref. 18.33], published April 2004. RIS_B Living Program Updates for the Fourth Interval will be included in Appendix B of this ISI Program Plan.

2.6 Class 1 and Class 2 systems will continue to receive system pressure testing and VT-2 examinations.

2.7 For Risk-Informed welds, the length for the UT examination volume shall be increased to include 1/2 inch beyond each side of the base metal thickness transition or counterbore. If a thickness transition or counterbore is not evident, the length for the UT examination volume shall be increased to include base material for a distance of 1/2 inch from each weld toe.

2.8 **Successive and Additional Examinations**

For the RIS_B application, Seabrook will meet the criteria of Code Case N-716-1, Section 6 for performing Successive and Additional examinations. In accordance with the Code Case, the following criteria apply:

2.8.1 Successive Inspections

As an alternative to the successive inspection requirements of IWB-2420, IWC-2420, or IWD-2420, the following requirements shall be met.

(1) The sequence of piping examinations established during the first inspection interval using this Case shall be repeated during each successive inspection interval to the extent practical. The examination sequence may be modified to optimize scaffolding, radiological, insulation removal, or other considerations, provided the percentage requirements of IWB-2410 are met.

(2) If Examination Category R-A Piping Welds are accepted for continued service by analytical evaluation in accordance with IWB-3132.3 or IWB-3142.4, the areas containing flaws or relevant conditions shall be re-examined during the next three inspection periods.

(3) If Class 2, 3, or non-class vessels, pumps, valves, and pressure-retaining bolting are accepted for continued service by analytical evaluation in accordance with IWC-3122.3, or IWC-3132.3, as applicable, the areas containing flaws or relevant conditions shall be reexamined during the next inspection period.

(4) If the reexaminations required by 2.8.1(2) reveal that the flaws or relevant conditions remain essentially unchanged, the examination schedule shall revert to the original schedule of successive inspections.

(5) If the reexaminations required by 2.8.1(3) reveal that the flaws or relevant conditions remain essentially unchanged during the successive inspection period, the examination schedule shall revert to the original schedule of successive inspections.

2.8.2 Additional Examinations

As an alternative to the additional examination requirements of IWB-2430, IWC-2430, or IWD-2430, the following requirements shall be met.

(1) Examinations performed, excluding Examination Categories B-P and C-H, or D-B that reveal flaws or relevant conditions exceeding the acceptance standards of Table IWB-3410-1, Table IWC-3410-1, or IWD-3410-1, as applicable, shall be extended to include a first sample of additional examinations during the current outage.

(a) The inspection item to be examined in the first sample of additional examinations shall include HSS inspection items with the same postulated degradation mechanism in systems whose materials and service conditions are similar to the element that exceeded the acceptance standards.

(b) The number of examinations required is the number of HSS inspection items with the same postulated degradation mechanism scheduled for the current inspection period. If there are not enough HSS inspection items to equal this number, Seabrook shall include remaining HSS inspection items and LSS inspection items within the Class 1, 2, and 3 systems subject to examination in accordance with Section XI, up to and including this number that are subject to the same degradation mechanism. This might require additional analysis of LSS components (e.g., degradation mechanism evaluation).

(2) If the additional examinations required by 2.8.2(1) reveal flaws or relevant conditions exceeding the acceptance standards of Table IWB-3410-1, Table IWC-3410-1, or IWD-3000 as applicable, the examinations shall be extended to include a second sample of additional examinations during the current outage.

(a) The second sample of additional inspection items to be examined shall include all remaining HSS inspection items subject to the same degradation mechanism.

(b) Seabrook shall also examine LSS inspection items identified with the same postulated damage mechanism within the Class 1, 2, and 3 systems subject to ex- amination in accordance with Section XI or document the basis for their exclusion. This might require additional analysis of LSS components (e.g., degradation mechanism evaluation).

(3) For the inspection period following the period in which the examination of 2.8.2(1) and (2) were completed, the examinations shall be performed as originally scheduled in accordance with IWB-2400.

3.0 Development of the Class 1 Examination Plan

Plant controlled isometrics, P&IDs, component drawings, and plant walkdowns were utilized to develop the Seabrook ISI isometrics and drawings and the scope of examinations. During examinations, these documents will be used to locate and identify each component or part. Other plant-controlled drawings or documents will be used when additional information is required.

Refer to the ISI scheduling database (IDDEAL) for a complete listing of components subject to examination and the proposed examination schedule.

3.1 Class 1 Code Exemptions

IWB-1220 – Components Exempt from Examination

The following components[1] or parts of components are exempted from the volumetric, surface, VT-1 visual and VT-3 visual examination requirements of IWB-2500:

(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 NPS 1 (DN 25) 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 (DN 25) 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 (DN 25) pipe.

(c) Reactor vessel head connections and associated piping, NPS 2 (DN 50) 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.

[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.

3.2 Component Examination Basis

This section describes each Examination Category. The required percentage of examinations and any limitations for each Examination Category is described. All other requirements are found in ASME Section XI, 2013 Edition. The Summary Table for the major components for Seabrook Station Unit 1 is located in the ISI scheduling database (IDDEAL). The ISI scheduling database (IDDEAL) satisfies the requirements of IWA-2420(b)(1) through (6), respectively.

The Class 1 system boundaries are identified on the site P&IDs. Specific examinations are in accordance with the ASME B&PV Code, Section XI, Table IWB-2500-1, as further described below.

3.3 Category B-A, Pressure Retaining Welds in Reactor Vessel

Table B-A provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel". Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements. The percentage of scheduled examinations for this Examination Category was developed in accordance with IWB-2411, "Inspection Program," subparagraphs (a)(2) and (a)(3), which allows examinations to be partially deferred or deferred, respectively, to the end of an inspection interval.

EXAMINATION CATEGORY B-A, PRESSURE RETAINING WELDS IN REACTOR VESSEL				
Item Numbers	**Parts Examined**	**Number of Welds**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
Shell Welds				
B1.11	Circumferential[1]	3	Volumetric	
B1.12	Longitudinal[1]	9	Volumetric	
Head Welds				
B1.21	Circumferential[1]	2	Volumetric	
B1.22	Meridional[1]	8	Volumetric	
B1.30	Shell-to-Flange Weld[1]	1	Volumetric	
B1.40	Head to Flange Weld[1]	1	Volumetric and Surface	
B1.50	Repair Welds in the Beltline Region	0	Volumetric	

Item Number B1.50 and B1.51 beltline region repair welds are not applicable to the Seabrook Station Unit 1 design.

[1]Table IWB-2500-1, B-A, Note (2), requires essentially 100% of all longitudinal and circumferential shell welds be examined. Note that the examinations of Item Nos. B1.21 and B1.22 Head Welds include the accessible length only.

3.4 Category B-B, Pressure Retaining Welds in Vessels Other Than Reactor Vessels

Table B-B provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-B, "Pressure Retaining Welds in Vessels Other Than Reactor Vessels". Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

The percentage of scheduled examinations for this Examination Category was developed in accordance with IWB-2411, "Inspection Program."

EXAMINATION CATEGORY B-B, PRESSURE RETAINING WELDS IN REACTOR VESSEL OTHER THAN VESSEL WELDS				
Item Numbers	**Parts Examined**	**Number of Welds**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
Pressurizer Shell to Head Welds				
B2.11	Circumferential	2	Volumetric	
B2.12	Longitudinal[1]	2	Volumetric	
Steam Generator Head Welds (Primary)				
B2.40	Steam Generator[2] Tubesheet-To-Head Weld	4	Volumetric	

Item Number B2.21, B2.22, B2.31, B2.32, B2.51, B2.52, B2.60, B2.70 and B2.80 welds are not included in the Seabrook Station Unit 1 design.

Table IWB-2500-1, B-B, Notes (2) and (4), Examine essentially 100% of the Pressurizer circumferential shell to head welds at both ends and 1 foot of one longitudinal weld adjacent to each shell to head weld.

[2]Table IWB-2500-1, B-B, Notes (1) and (4), the examination may be limited to one vessel among the group of vessels performing a similar function. Examine essentially 100% of the Steam Generator tubesheet-to-head weld, Figure IWB-2500-6.

3.5 Category B-D, Full Penetration Welded Nozzles Welds of Nozzle in Vessels

Table B-D provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-D, "Full Penetration Welded Nozzles in Vessels". Refer to the table below for the applicable Relief Requests. Code Cases and Regulatory Requirements.

The percentage of scheduled examinations for this Examination Category was developed in accordance with IWB-2411, "Inspection Program," subparagraph (a)(2), which allows examinations to be partially deferred to the end of an inspection interval (RPV only).

EXAMINATION CATEGORY B-D, FULL PENETRATION WELDED NOZZLES IN VESSELS				
Item Numbers	**Parts Examined**	**Number of Welds**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
Reactor Vessel				
B3.90	Nozzle-to-Vessel Welds[2]	8	Volumetric	N-613-2
B3.100	Nozzle Inside Radius[2]	8	VT-1[2]	N-648-2
Pressurizer				
B3.110	Nozzle-to-Vessel Welds	6	Volumetric	
B3.120	Nozzle Inside Radius[1]	0		
Steam Generator (Primary)				
B3.130	Nozzle-to-Vessel Welds	8	Volumetric	
B3.140	Nozzle Inside Radius[1]	0		

There are no Item Numbers B3.150, 3.160 welds at Seabrook Station Unit 1.

[1]Examination of these nozzle inner radius sections is no longer mandated by 10CFR50.55a (b)(2)(xxi)(A).

[2]Table IWB-2500-1, B-D, Note (5), For PWRs in the second and successive inspection intervals, these examinations may be deferred to the end of the interval, provided no repair/replacement activities have been performed on the examination item, and no flaws or relevant conditions requiring successive inspections in accordance with IWB-2420(b) are contained in the examination item. For nozzle inner radius examinations, a VT-1 can be substituted for a volumetric in accordance with Code Case N-648-2.

3.6 Category B-F, Pressure Retaining Dissimilar Metal Welds

These welds will be examined under the RIS_B Program in accordance with Code Case N-716-1.

3.7 Category B-G-1 - Pressure Retaining Bolting, Greater Than 2 inches in Diameter

Table B-G-1 provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-G-1, "Pressure Retaining Bolting, Greater Than 2 inches in Diameter". Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

The percentage of scheduled examinations for this Examination Category was developed in accordance with IWB-2411, "Inspection Program," subparagraph (a)(4), which allows examinations to be deferred until disassembly of a component for maintenance, repair/replacement activity, or volumetric examination.

EXAMINATION CATEGORY B-G-1, PRESSURE RETAINING BOLTING, GREATER THAN 2 in. (50 mm) IN DIAMETER				
Item Numbers	**Parts Examined**	**Number of Components**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
Reactor Vessel				
B6.10	Closure Head Nuts	54	Visual, VT-1	
B6.20	Closure Studs, in place[1]	54	Volumetric or Surface	
B6.40	Threads in Flange	54	Volumetric	
B6.50	Closure Washers, Bushings[2]	54	Visual, VT-1	
Reactor Coolant Pump				
B6.180	Bolts and Studs[1,3]	96	Volumetric or Surface	
B6.190	Flange Surface, when connection disassembled[4,5]	4	Visual, VT-1	
B6.200	Nuts, Bushings, and Washers	4	Visual, VT-1	

There is no pressure retaining bolting within Item Numbers B6.60, B6.70, B6.80, B6.90, B6.100, B6.110, B6.120, B6.130, B6.140, B6.150, B6.160, B6.170, B6.210, B6.220 and B6.230 at Seabrook Station Unit 1.

[1]Table WB-2500-1, B-G-1, Note (1), Bolting may be examined in place under tension, when the connection is disassembled, or when the bolting is removed.

[2]Table IWB-2500-1, B-G-1, Note (2), Bushings are required to be examined only when the bolting is removed. Bushings may be examined in place.

[3] Table IWB-2500-1, B-G-1, Note (3), Volumetric examination of bolting for heat exchangers, pumps, or valves may be conducted on one heat exchanger, one pump, or one valve among a group of heat exchangers, pumps, or valves that are similar in design, type, and function.

In addition, when the component to be examined contains a group of bolted connections of similar design and size, such as flanged connections, the examination may be conducted on one bolted connection among the group.

[4]Table IWB-2500-1, B-G-1, Note (4), Visual examination of nuts, bushings, washers, and flange surfaces for heat exchangers, pumps, or valves is required only when the component is examined under Examination Category B-B, B-L-2, or B-M-2. Examination of a bolted connection is required only once during the interval.

[5]Table IWB-2500-1, B-G-1, Note (6), Examination includes 1 in. (25 mm) annular surface of flange surrounding each stud.

3.8 Category B-G-2, Pressure Retaining Bolting, 2 in. and Less in Diameter

Table B-G-2 provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-G-2, "Pressure Retaining Bolting, 2 Inches and Less in Diameter". Examination is only required when the flange or valve is disassembled, or bolting is removed. Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

The percentage of scheduled examinations for this Examination Category was developed in accordance with IWB-2411, "Inspection Program," subparagraph (a)(4), which allows examinations to be deferred until disassembly of a component for maintenance, repair/replacement activity, or volumetric examination.

EXAMINATION CATEGORY B-G-2, PRESSURE RETAINING BOLTING, 2 in. (50 mm) AND LESS IN DIAMETER				
Item Numbers	**Parts Examined**	**Number of Components**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
Pressurizer				
B7.20	Bolts, Studs, and Nuts[1,2]	1 closure	Visual, VT-1	
Steam Generator				
B7.30	Bolts, Studs, and Nuts[1,2]	8 closures	Visual, VT-1	
Piping				
B7.50	Bolts, Studs, and Nuts[1,3]	6 flanges	Visual, VT-1	
Pumps				
B7.60	Bolts, Studs, and Nuts[1,2]	4 closures	Visual, VT-1	
Valves				
B7.70	Bolts, Studs, and Nuts[1,2]	56 closures	Visual, VT-1	

There is no pressure retaining bolting within Item Numbers B7.10 or B7.40 at Seabrook Station Unit 1.

[1]Table IWB-2500-1, B-G-2, Note (1), Bolting is required to be examined only when a connection is disassembled, or bolting is removed.

[2]Table IWB-2500-1, B-G-2, Note (2), For components other than piping, examination of bolting is required only when the component is examined under Examination Category B-A, B-B, B-L-2, or B-M-2. Examination of bolted connection is required only once during the interval.

[3]Table IWB-2500-1, B-G-2, Note (3), The examination of flange bolting in piping systems may be limited to one bolted connection among a group of bolted connections that are similar in design, size, function, and service. Examination is required only when a flange is disassembled. Examination of a bolted connection is required only once during the interval.

3.9 Category B-J, Pressure Retaining Welds in Piping

These welds will be examined under the RIS_B Program in accordance with Code Case N-716-1.

3.10 Category B-K, Welded Attachments for Vessels, Piping, Pumps, and Valves

Table B-K provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-K, "Welded Attachments for Vessels, Piping, Pumps, and Valves". Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

EXAMINATION CATEGORY B-K, WELDED ATTACHMENTS				
Item Numbers	**Parts Examined**	**Number of Welded Attachments**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
Pressure Vessels				
B10.10[1,3]	Vessel Welded Attachments	5	Surface	
Piping				
B10.20[2,3]	Piping Welded Attachments	1	Surface	

There are no Item Number B10.30 or B10.40 welded attachments at Seabrook Station Unit 1.

[1]Table IWB-2500-1, B-K, Note (4), for multiple vessels of similar design, function and service, only one welded attachment of only one of the multiple vessels shall be selected for examination. For single vessels, only one welded attachment shall be selected for examination. The attachment selected for examination on one of the multiple vessels or the single vessel, as applicable, shall be an attachment under continuous load during normal system operation, or an attachment subject to a potential intermittent load (seismic, water hammer, etc.) during normal system operation if an attachment under continuous load does not exist.

[2]Table IWB-2500-1, B-K, Note (5), for piping, pumps, and valves, a sample of 10% of the welded attachments associated with the component supports selected for examination under IWF-2510 shall be examined.

[3]Table IWB-2500-1, B-K, Note (6), Examination is required whenever component support member deformation, e.g., broken, bent, or pulled out parts, is identified during operation, refueling, maintenance, examination, or testing.

3.11 Category B-L-2, Pump Casings

Table B-L-2 provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-L-2, "Pump Casing".

The percentage of scheduled examinations for Examination Category B-L-2 was developed in accordance with IWB-2411, "Inspection Program," subparagraph (a)(4), which allows examinations to be deferred until disassembly of a component for maintenance, repair/replacement activity, or volumetric examination. Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

EXAMINATION CATEGORY B-L-2, PUMP CASINGS				
Item Numbers	**Parts Examined**	**Number of Components**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
Pumps				
B12.20	Pump Casing[1,2]	4	Visual, VT-3	

[1]Table IWB-2500-1, B-L-2, Note (1), Examinations are limited to at least one pump in each group of pumps performing similar functions in the system, e.g., recirculating coolant pumps.

[2]Table WB-2500-1, B-L-2, Note (2), Examination is required only when a pump is disassembled for maintenance, or repair. Examination of the internal pressure boundary shall include the internal pressure retaining surfaces made accessible for examination by disassembly. If a partial examination is performed and a subsequent disassembly of that pump allows a more extensive examination, an examination shall be performed during the subsequent disassembly. A complete examination is required only once during the interval.

3.12 Category B-M-2, Valve Bodies

Table B-M-2 provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-M-2, "Valve Bodies".

The percentage of scheduled examinations for Examination Category B-M-2 was developed in accordance with IWB-2411, "Inspection Program," subparagraph (a)(4), which allows examinations to be deferred until disassembly of a component for maintenance, repair/replacement activity, or volumetric examination. Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

EXAMINATION CATEGORY B-M-2, VALVE BODIES				
Item Numbers	**Parts Examined**	**Number of Components**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
Valves				
B12.50	Valve body, exceeding NPS 4 (DN 100)[1,2]	33	Visual, VT-3	

[1]Table IWB-2500-1, B-M-2, Note (2), Examination is required only when a valve is disassembled for maintenance, or repair. Examination of the internal pressure boundary shall include the internal pressure retaining surfaces made accessible for examination by disassembly. If a partial examination is performed and a subsequent disassembly of that valve allows a more extensive examination, an examination shall be performed during the subsequent disassembly. A complete examination is required only once during the interval.

[2]Table IWB-2500-1, B-M-2, Note (3), Examinations are limited to at least one valve within each group of valves that are of the same size, constructural design (such as globe, gate, or check valves), and manufacturing method, and that perform similar functions in the system (such as containment isolation and system overpressure protection). These valve groupings are shown in Table 4, which follows.

Table 4 Class 1 Valve Grouping			
Group Number	**Manufacturer**	**Valve Number**	**Type & Size**
1	Westinghouse	RC-V-22 RC-V-23 RC-V-87 RC-V-88	12" Gate Valve
2	Crosby	RC-V-115 RC-V-116 RC-V-117	6" Relief Valve
3	Westinghouse	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	RH-V-59 RH-V-61 RH-V-63 RH-V-65	6" Gate Valve

Table 4 Class 1 Valve Grouping			
Group Number	**Manufacturer**	**Valve Number**	**Type & Size**
5	Westinghouse	SI-V-3 SI-V-17 SI-V-32 SI-V-47	10" Gate Valve
6	Westinghouse	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

3.13 Categories B-N-1, B-N-2 & B-N-3: Interior of Reactor Vessel, Welded Core Support Structures and Interior Attachments to Reactor and Vessels, Removable Core Support Structures

Table IWB-2500-1 for Categories B-N-1, B-N-2 & B-N-3 provides the examination scope and schedule for "Interior of Reactor Vessel, "Welded Core Support Structures and Interior Attachments to the Reactor Vessels" and "Removable Core Support Structures".

The percentage of scheduled examinations for this Examination Category is not applicable in accordance with IWB-2411, "Inspection Program," subparagraph (a)(1) and (a)(3). To reduce radiation exposure, 100% of the Category B-N-2 and B-N-3 examinations will be deferred to the end of the interval in accordance with Table IWB-2500-1, thereby allowing these examinations to be completed during a single, scheduled refueling outage. Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

EXAMINATION CATEGORIES B-N-1, B-N-2, B-N-3, WELDED CORE SUPPORT STRUCTURES AND INTERIOR ATTACHMENTS TO THE REACTOR VESSELS AND REMOVABLE CORE SUPPORT STRUCTURES				
Item Numbers	**Parts Examined**	**Number of Areas**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
B13.10	(B-N-1) Vessel Interior[1]	1	Visual, VT-3	
B13.60	(B-N-2) Interior Attachments Beyond Beltline Region[2]	6	Visual, VT-3	
B13.70	(B-N-3) Core Support Structure[3]	1	Visual, VT-3	

Item Numbers B13.20, B13.30, B13.40 and B13.50 are not applicable to Seabrook Station Unit 1.

[1]Table IWB-2500-1, B-N-1, Notes (1) and (3), Examinations include a VT-3 visual examination of accessible areas above and below the reactor core made accessible for examination by removal of components during normal refueling activities. Examination shall be performed at the 1st refueling outage, and subsequent refueling outages at approximately 3 year intervals.

[2]Table IWB-2500-1, B-N-2, Note (2), Examinations include a VT-3 visual examination of interior attachments beyond the beltline region once per interval.

[3]Table IWB-2500-1, B-N-3, Note (3), Examinations include a VT-3 visual examination of the core support structure once per interval. The structure shall be removed from the reactor vessel for examination.

3.14 Category B-O, Pressure Retaining Welds in Control Rod Drive and Instrument Housings

Table IWB-2500-1 for Category B-O provides the examination scope and schedule for "Pressure Retaining Welds in Control Rod Drive and Instrument Housings."

The percentage of scheduled examinations for this Examination Category is not applicable in accordance with IWB-2411, "Inspection Program," subparagraph (a)(3). The required examinations for this Examination Category may be deferred to the end of the inspection interval. Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

EXAMINATION CATEGORY B-O, PRESSURE RETAINING WELDS IN CONTROL ROD DRIVE AND INSTUMENTATION HOUSINGS				
Item Numbers	**Parts Examined**	**Number of Welds**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
B14.20	Welds in Control Rod Drive (CRD) Housings	20	Volumetric or Surface[1]	

Seabrook Station Unit 1 has 20 control rod housings on the periphery with 1 weld per housing and no Category 14.21 Incore Instrumentation (ICI) Housing welds greater than or equal to 2" NPS.

[1]Table IWB-2500-1, B-O, Note (1), The surface examination method shall be performed on the inside diameter of the penetration nozzle housing welds as shown in Figure IWB-2500-18 for examination surface area C-D.

3.15 Category B-P, All Pressure Retaining Components

Table B-P provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-P, "All Pressure Retaining Components". Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

EXAMINATION CATEGORY B-P, ALL PRESSURE RETAINING COMPONENTS				
Item Numbers	**Description**	**Test Procedures**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
B15.10	Class 1 System Leakage Test[1,3]	Various	Visual, VT-2	N-731, N-798, N-800,
B15.20	Class 1 System Leakage Test[2,3]	Various	Visual, VT-2	N-731, N-798, N-800,

[1]Table IWB-2500-1, B-P, Notes (1) and (2): The VT-2 Visual examination shall be performed in accordance with IWA-5240. The system leakage test per IWB-5220 shall be conducted prior to plant startup following each refueling outage.

[2] Table IWB-2500-1, B-P, Notes (1) and 3: The VT-2 Visual examination shall be performed in accordance with IWA-5240. The system leakage test of IWB-5220 of the boundary of IWB-5222(b) shall be performed at or near the end of the interval.

[3] Per IWA-5241(f), for insulated components in systems borated for the purpose of controlling reactivity, insulation shall be removed from pressure retaining bolted connections for VT-2 visual examination unless material requirements are met.

3.16 Category B-Q, Steam Generator Tubing

Table IWB-2500-1 provides the examination scope and schedule for Examination Category B-Q, "Steam Generator Tubing"

The extent and frequency of steam generator tubing surveillance requirements, Item No. B16.20 are contained in plant Technical Specification 6.7.6.k. The Steam Generator Program, which includes the requirements for the steam generator examinations. Administrative requirements associated with ASME Section XI are addressed by this document. Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

EXAMINATION CATEGORY B-Q, STEAM GENERATOR TUBING				
Item Numbers	**Description**	**Number of Components**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
B16.20	Steam Generator Tubing in U-Tube Design[1]	4	Volumetric	N/A

[1]Table IWB-2500-1, B-Q, Note (1): The extent and frequency of examination shall be governed by the plant Technical Specifications.

3.17 Category R-A, Risk-Informed/Safety-Based Inservice Inspection

As discussed in Section 2.0, starting in the Fourth Interval the Seabrook Station Risk-Informed/Safety-Based application is in accordance with ASME Section XI Code Case N-716-1. The RIS_B Program supersedes the ASME XI examination selection requirements of Examination Categories B-F, B-J, C-A, C-B, C-F-1 and C-F-2.

The tables shown below indicate the required nondestructive examination requirements for welds subject to Code Case N-716-1. All welds are still subject to VT-2 pressure testing regardless of whether they are High Safety Significant or Low Safety Significant.

Table R-A-1 provides the examination scope for High Safety Significant Class 1 and 2 piping welds as an alternative to Table IWB-2500-1, Examination Categories B-F, B-J, C- F-1 and C-F-2.

Table R-A-2 provides the examination scope for Low Safety Significant Class 1 and 2 piping welds as an alternative to Table IWB-2500-1, Examination Categories B-F, B-J, C- F-1 and C-F-2.

Table R-A-3 provides the examination scope for High Safety Significant Class 2 vessel welds as an alternative to Table IWC-2500-1, Examination Categories C-A and C-B.

Table R-A-4 provides the examination scope for Low Safety Significant Class 2 vessel welds as an alternative to Table IWC-2500-1, Examination Categories C-A and C-B.

EXAMINATION CATEGORY R-A-1, RISK INFORMED INSERVICE INSPECTION FOR HSS PIPING WELDS				
Item Numbers	**Description**	**Number of Components**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
R1.11	Welds Subject to Thermal Fatigue	151*	Volumetric	Code Case N-716-1
R1.12	Item No Not Used	N/A	N/A	Code Case N-716-1
R1.13	Welds Subject to Erosion-Cavitation	0	Volumetric	Code Case N-716-1
R1.14	Welds Subject to Crevice Corrosion Cracking	0	Volumetric	Code Case N-716-1
R1.15	Welds Subject to Primary water Stress Corrosion Cracking (PWSCC)	8	Volumetric per PWSCC Program	Code Case N-716-1
R1.16	Welds Subject to Intergranular or Transgranular Stress Corrosion Cracking (IGSCC om TGSCC)	7	Volumetric	Code Case N-716-1
R1.17	Welds Subject to Localized Corrosion [Microbiologically Influenced Corrosion (MIC) or Pitting]	0	Visual, VT-3 Internal Surface or Volumetric	Code Case N-716-1
R1.18	Welds Subject to Flow Accelerated Corrosion (FAC)	Per FAC Program	Per FAC Program	Code Case N-716-1
R1.19	Welds Subject to External Chloride Stress Corrosion Cracking	0	Surface	Code Case N-716-1
R1.20	Welds Not Subject to a Degradation Mechanism	932	Volumetric	Code Case N-716-1

*Of the 151 welds listed under Item No. R1.11, twelve of them were also assigned Intergranular Stress Corrosion Cracking (Item No. R1.16) as a potential degradation

mechanism. The higher of the Item Nos. (R1.11) was assigned administratively, but both degradation mechanisms are considered during the RIS_B application.

EXAMINATION CATEGORY R-A-2, RISK INFORMED INSERVICE INSPECTION FOR LSS PIPING WELDS				
Item Numbers	**Description**	**Number of Components**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
R0.00	LSS Class 1 & 2 Piping Welds	1970	None	Code Case N-716-1

EXAMINATION CATEGORY R-A-3, RISK INFORMED INSERVICE INSPECTION FOR HSS CLASS 2 VESSEL WELDS				
Item Numbers	**Description**	**Number of Components**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
C1.10	HSS Class 2 Vessel Shell Circumferential Welds	12	Volumetric	Code Case N-716-1
C1.20	HSS Class 2 Vessel Head Circumferential Welds	4	Volumetric	Code Case N-716-1
C1.30	HSS Class 2 Vessel Tubesheet-to-Shell Welds	4	Volumetric	Code Case N-716-1
C2.21	HSS Class 2 Vessel Nozzle-to-Shell Welds	8	Surface and Volumetric	Code Case N-716-1
C2.22	HSS Class 2 Vessel Nozzle Inside Radius Section	4	Volumetric	Code Case N-716-1

EXAMINATION CATEGORY R-A-4, RISK INFORMED INSERVICE INSPECTION FOR LSS CLASS 2 VESSEL WELDS				
Item Numbers	**Description**	**Number of Components**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
R0.00	LSS Class 2 Vessel Welds	23	None	Code Case N-716-1

4.0 Development of the Class 2 Examination Plan

Plant controlled isometric, P&IDs, component drawings, and plant walkdowns were used to develop the ISI drawings and the scope of examinations. During examinations, drawings will be used to locate and identify each component. Other plant-controlled drawings or documents will be used when additional information is required.

Refer to the ISI scheduling database (IDDEAL) for a complete listing of components subject to examination and the proposed examination schedule.

4.1 Class 2 Code Exemptions

The following Class 2 exemption criteria are applicable. IWC-1220 of ASME Section XI, 2013 Edition lists the piping and components exempt from examination.

IWC-1220 – Components Exempt from Examination

The following components or parts of components are exempted from the volumetric and surface examination requirements of IWC-2500:

4.1.1 IWC-1221, Components within RHR, ECC, and CHR Systems or Portions of Systems[1]

(a) For systems, except high pressure safety injection systems in pressurized water reactor plants:

(1) Components and piping segments NPS 4 (DN100) and smaller.

(2) Components and piping segments which have one inlet and one outlet, both of which are NPS 4 (DN 100) and smaller.

(3) Components[2] and piping segments which have multiple inlets or multiple outlets, whose cumulative cross-sectional area does not exceed the cross-sectional area defined by the OD of NPS 4 (DN 100) pipe.

(b) For high pressure safety injection systems in pressurized water reactor plants:

(1) Components and piping segments NPS 1 1/2 (DN 40) and smaller.

(2) Components and piping segments which have one inlet and one outlet, both of which are NPS 1 1/2 (DN 40) and smaller.

(3) Components[2] and piping segments which have multiple inlets or multiple outlets, whose cumulative cross-sectional area does not exceed the cross-sectional area defined by the OD of NPS 4 (DN 40) pipe.

(c) Vessels, piping, pumps, valves, other components, and component connections of any size in statically pressurized, passive (i.e., no pumps) safety injection systems[3] of pressurized water reactor plants.

(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.

[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

Table 5
Class 2 Exempt Components

Component/Piping System	Exemption Criteria
Accumulator Tank SI-TK-9A & piping to Valves V6, V1, V2	IWC-1221(c)
Accumulator Tank SI-TK-9B & piping to Valves V21, V8, V22	IWC-1221(c)
Accumulator Tank SI-TK-9C & piping to Valves V36, V31, V37	IWC-1221(c)
Containment Spray from Valve V-11 to spray headers inside containment	IWC-1221(d)
Containment Spray from Valve V-17 to spray headers inside containment	IWC-1221(d)

4.1.2 IWC-1222, Components within Systems or Portions of Systems Other Than RHR, ECC, and CHR Systems[1]

(a) For systems, except auxiliary feedwater systems in pressurized water reactor plants:

(1) Components and piping segments NPS 4 (DN 100) and smaller.

(2) Components and piping segments which have one inlet and one outlet, both of which are NPS 4 (DN 100) and smaller.

(3) Components[2] and piping segments which have multiple inlets or multiple outlets, whose cumulative cross-sectional area does not exceed the cross-sectional area defined by the OD of NPS 4 (DN 100) pipe.

(b) For auxiliary feedwater systems in pressurized water reactor plants:

(1) Components and piping segments NPS 1 1/2 (DN 40) and smaller.

(2) Components and piping segments which have one inlet and one outlet, both of which are NPS 1 1/2 (DN 40) and smaller.

(3) Components[2] and piping segments which have multiple inlets or multiple outlets, whose cumulative cross-sectional area does not exceed the cross-sectional area defined by the OD of NPS 1 1/2 (DN 40) pipe.

(c) Vessels, piping, pumps, valves, other components, and component connections of any size in systems or portions of systems that operate (when the safety function is required) at a pressure equal to or less than 275 psig (1900kPa) and at a temperature equal to or less than 200°F (95°C).

(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.

[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.

4.1.3 IWC-1223, Inaccessible Welds

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.

4.2 Component Examination Basis

This section describes each Examination Category. The required percentage of examinations and any limitations for each Examination Category is described. All other requirements are found in ASME Section XI, 2013 Edition. The Summary Table for the major components at Seabrook Station are located in the ISI scheduling database (IDDEAL). The ISI scheduling database (IDDEAL) satisfies the requirements of IWA-2420(b)(1) through (6), respectively.

The Class 2 system boundaries are identified on the site P&ID drawings. Specific examinations are in accordance with the ASME B&PV Code, Section XI, Table IWC-2500-1, as further described below.

4.3 Category C-A, Pressure Retaining Welds in Pressure Vessels

These welds will be examined under the RIS_B Program in accordance with Code Case N-716-1.

4.4 Category C-B, Pressure Retaining Nozzle Welds in Pressure Vessels

These welds will be examined under the RIS_B Program in accordance with Code Case N-716-1.

4.5 Category C-C, Welded Attachments for Pressure Vessels, Piping, Pumps, and Valves

Table C-C provides the examination scope and schedule for Table IWC-2500-1, Examination Category C-C, "Welded Attachments for Pressure Vessels, Piping, Pumps, and Valves". Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

EXAMINATION CATEGORY C-C, WELDED ATTACHMENTS FOR VESSELS, PIPING, PUMPS, AND VALVES				
Item Numbers	**Description**	**Number of Welds**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
C3.10	Pressure Vessel Welded Attachments[1,2]	2	Surface	
C3.20	Piping Welded Attachments[1,3]	25	Surface	

There are no Item Number C3.30 or C3.40 parts at Seabrook Station Unit 1.

[1]Table IWC-2500-1, C-C, Note (5), Examinations are required whenever component support member deformation, e.g., broken, bent, or pulled out parts, is identified during operation, refueling, maintenance, examination, or testing.

[2]Table IWC-2500-1, C-C, Note (6), For multiple vessels of similar design, function and service, only one of the welded attachments of only one of the multiple components requires examination. For single vessels, only one welded attachment shall be selected for examination. The attachment selected for examination on one of the multiple vessels or the single vessel, as applicable, shall be an attachment under continuous load during normal system operation, or an attachment subject to a potential intermittent load (seismic, water hammer, etc.) during normal system operation if an attachment under continuous load does not exist.

[3]Table IWC-2500-1, C-C, Note (7), For piping, pumps, and valves, a sample of 10% of the welded attachments associated with the component supports selected for examination under IWF-2510 shall be examined.

4.6 Category C-D - Pressure Retaining Bolting > 2" in Diameter

Examination Category C-D **is not** applicable at Seabrook Station Unit 1.

4.7 Category C-F-1, Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping

These components will be examined under the RIS_B Program in accordance with Code Case N-716-1.

4.8 Category C-F-2, Pressure Retaining Welds in Carbon or Low Alloy Steel Piping

These components will be examined under the RIS_B Program in accordance with Code Case N-716-1.

4.9 Category C-H, All Pressure Retaining Components

Table C-H provides the examination scope and schedule for Table IWC-2500-1, Examination Category C-H, "All Pressure Retaining Components." Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

System leakage tests will be performed in accordance with the rules of Section XI as modified by IWA-5110(c), which exempts piping that penetrates a containment vessel from periodic pressure testing when the piping and isolation valves perform a containment function and the balance of the piping system is outside the scope of Section XI, Division 1 (non-classed).

EXAMINATION CATEGORY C-H, ALL PRESSURE RETAINING COMPONENTS				
Item Numbers	**Description**	**Test Procedures**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
C7.10	Class 2 Pressure Retaining Parts[2]	Various	Visual, VT-2[1]	Code Case N-805

[1]Table IWC-2500-1, C-H, Note (1), requires the VT-2 examination during the IWC-5220 System Leakage Test to be performed in accordance with IWA-5240.

[2] Per IWA-5241(f), for insulated components in systems borated for the purpose of controlling reactivity, insulation shall be removed from pressure retaining bolted connections for VT-2 visual examination unless material requirements are met.

5.0 Development of the Class 3 Examination Plan

Plant controlled isometric, P&IDs, component drawings, and plant walkdowns were used to develop the ISI drawings and the scope of examinations. During examinations, drawings will be used to locate and identify each component. Other plant-controlled drawings or documents will be used when additional information is required. Refer to the ISI scheduling database (IDDEAL) for a complete listing of components subject to examination and the proposed examination schedule.

The Class 3 system boundaries subject to examination and testing were developed based upon the requirements of UFSAR Section 3.2.2 and ASME Section XI, Table IWD-2500-1.

5.1 IWD-1210 - Examination Requirements

The examination requirements of this Subsection shall apply to pressure retaining components and their welded attachments on Class 3 systems in support of the following functions:

(a) Reactor shutdown
(b) Emergency core cooling
(c) Containment heat removal
(d) Atmosphere cleanup
(e) Reactor residual heat removal
(f) Residual heat removal from spent fuel storage pool

5.2 Class 3 Code Exemptions and Exclusions

The following Class 3 exemption criteria are applicable. Paragraph IWD-1220 of ASME Section XI, 2013 Edition lists those piping segments and components exempt from examination.

5.2.1 IWD-1220 - Components Exempt from Examination

The following components or parts of components are exempted from the VT-1 visual examination requirements of IWD-2500:

(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 (DN 100) 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 (DN 100) pipe.

(d) Components[1] that operate at a pressure of 275 psig (1,900 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.

The following Class 3 components are exempt from examination.

Table 6
Class 3 Exempt Components

Component/Piping System	Exemption Criteria
Spent Fuel Pool Cooling Components on PID-1-SF-F20482	IWD-1220(d)

5.2.2 **IWD-5222 Boundaries**

(a) The pressure-retaining boundary for closed systems includes only those portions of the system required to operate or support the safety-related function up to and including the first normally closed valve (including a safety or relief valve) or valve capable of automatic closure when the safety function is required.

(b) The pressure-retaining boundary for non-closed systems (e.g., service water systems) includes only those portions of the system required to operate or support the safety function up to and including the first normally closed valve (including a safety or relief valve) or valve capable of automatic closure when the safety function is required. Open-ended discharge piping is included in the pressure-retaining boundary, provided it is periodically pressurized to conditions described in IWD-5221.

(c) The following portions of systems are excluded from examination requirements:

(1) Items outside the boundaries of IWD-5222(a).

(2) Items outside the boundaries of IWD-5222(b).

(3) Open-ended discharge piping that is not periodically pressurized to conditions described in IWD-5221.

(4) Portions of systems that are associated with a spray header or are normally submerged in its process fluid such that the external surfaces of the pressure-retaining boundary are normally wetted during its pressurized conditions.

5.3 Component Examination Basis

This section describes each Examination Category. The required percentage of examinations and any limitations for each Examination Category is described. All other requirements are found in ASME Section XI, 2013 Edition. The Summary Table for the major components for Seabrook Station Unit 1 are located in the ISI scheduling database (IDDEAL). The ISI scheduling database satisfies the requirements of IWA-2420(b)(1) through (6), respectively.

The Class 3 system boundaries are identified on the site P&ID drawings. Specific examinations are in accordance with the ASME B&PV Code, Section XI, Table IWD-2500-1, as further described below.

5.4 Category D-A, Welded Attachments for Vessels, Piping, Pumps, and Valves

Table D-A provides the examination scope and schedule for Table IWD-2500-1, Examination Category D-A, "Welded Attachments for Vessels, Piping, Pumps, and Valves". Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

Examinations required in accordance with Table IWD-2500-1:

EXAMINATION CATEGORY D-A, WELDED ATTACHMENTS FOR VESSELS, PIPING, PUMPS, AND VALVES				
Item Number	**Description**	**Number of Welded Attachments**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
D1.10	Vessel Welded Attachments[1,2,3]	6	Visual, VT-1	
D1.20	Piping Welded Attachments[1,2,4]	107	Visual, VT-1	

The Seabrook Station Unit 1 design does not include Item Numbers D1.30 and D1.40 welded attachments.

[1]Table IWD-2500-1, D-A, Note (4) Selected samples of welded attachments shall be examined each inspection interval.

[2]Table IWD-2500-1, D-A, Note (5) Examination is required whenever component support member deformation, e.g., broken, bent, or pulled out parts, is identified during operation, refueling, maintenance, examination, or testing.

[3]Table IWD-2500-1, D-A, Note (6), all welded attachments selected for examination shall be those most subject to corrosion, as determined by the Owner, such as the welded attachments of the Service Water or Emergency Service Water systems. For multiple vessels of similar design, function and service, the welded attachments of only one of the multiple vessels shall be selected for examination. For single vessels, only one welded attachment shall be selected for examination. The attachment selected for examination on one of the multiple vessels or the single vessel, as applicable, shall be an attachment under continuous load during normal system operation, or an attachment subject to a potential intermittent load

(seismic, water hammer, etc.) during normal system operation if an attachment under continuous load does not exist.

[4]Table WD-2500-1, D-A, Note (7), For piping, pumps, and valves, a sample of 10% of the welded attachments in systems the Owner has determined the welded attachments to be subject to corrosion, such as the Service Water or Emergency Service Water Systems, shall be selected for examination.

5.5 Category D-B, All Pressure Retaining Components

Table D-B identifies the system leakage and hydrostatic tests conducted in accordance with Table IWD-2500-1, Examination Category D-B, "All Pressure Retaining Components." Refer to the table below for the applicable Relief Requests, Code Cases and Regulatory Requirements.

EXAMINATION CATEGORY D-B, ALL PRESSURE RETAINING COMPONENTS				
Item Numbers	**Description**	**Test Procedures**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
D2.10	Class 3 Pressure Retaining Parts[1,2]	Various	Visual, VT-2	

[1]Table IWD-2500-1, Category D-B requires a System Leakage Test to be performed in accordance with IWD-5220 once each inspection period.

[2] Per IWA-5241(f), for insulated components in systems borated for the purpose of controlling reactivity, insulation shall be removed from pressure retaining bolted connections for VT-2 visual examination unless material requirements are met.

6.0 IWE Metal Containment Requirements

The requirements for Code Class MC, Metal Containment components are found in the Seabrook Station Unit 1 Third Interval Containment Building Metal Containment Inservice Inspection Program Plan, 3rd Interval-IWE-SBK-1-Program Plan, which is administered separately. This document establishes the administrative, managerial, and implementation control for the IWE Containment Inspection Program for the Third 10-year Inservice Inspection interval.

7.0 Development of Component Supports Examination Plan

Plant controlled isometrics, P&IDs, component drawings, and plant walkdowns were used to develop the ISI isometrics and ISI drawings as well as the scope of examinations. During examinations, these documents will be used to locate and identify each component support. Other plant-controlled drawings or documents will be used when additional information is required. Refer to the ISI scheduling database (IDDEAL) for a complete listing of component supports subject to examination and the proposed examination schedule.

The Class 1, 2, and 3 system boundaries subject to examination and testing were developed based upon the requirements of UFSAR Section 3.2.2 and ASME Section XI, Table IWF-2500-1.

7.1 Code Exemptions for Supports

The following Component Support exemption criteria are applicable. Paragraph IWF-1230 of ASME Section XI, 2013 Edition lists those component supports exempt from examination.

7.1.1 IWF-1230 Supports Exempt from Examination[1]

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.

[1]Examination and test requirements for snubbers can be found in the ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code).

7.2 Support Examination Basis

This section describes Examination Category F-A, Supports examination basis. The required percentage of examinations and any limitations are described. All other requirements are found in ASME Section XI, 2013 Edition. The Summary Tables for the major components for Seabrook Station 3 and 4 are located in the ISI scheduling database (IDDEAL). The ISI scheduling database satisfies the requirements of IWA-2420(b)(1) through (6), respectively. A discussion of F-A supports subject to examination and testing is described in detail in subsections 7.2.1, 7.2.2 and 7.3 below.

7.2.1 Category F-A, Supports

The Class 1, 2, 3, and MC component support boundaries are based on the requirements described in ASME B&PV Code, Section XI, Table IWF-2500-1 and applicable Notes, as indicated below. The term "component support" includes supports for such items as vessels, pumps and valves and supports for piping. Note that piping supports are treated separately for selection purposes.

Component supports selected and examined are those supports for components that are required to be examined in accordance with the following:

(a) IWB-2500, IWC-2500 and IWD-2500 “Examination and Inspection Requirements” and IWE-2500, Examination and Pressure Test Requirements”

(1) Piping supports are selected in accordance with the percentages and sampling requirements of Table IWF-2500-1 from the population of system piping not exempted per IWB-

1220, IWC-1220, IWD-1220 and IWE-1220, in accordance with IWF-2510, "Supports Selected for Examination."

(2) Piping support examinations will be in accordance with Table IWF-2500-1, Examination Category F-A, and will include 25% of Class 1 supports (Item No. F1.10), 15% of Class 2 supports (Item No. F1.20), and 10% of Class 3 supports (Item No. F1.30) on non-exempt piping.

(3) Examinations will also include selection of Class 1, 2, 3, and MC component supports other than piping supports, Item No. 1.40, Supports other than Piping Supports. The examinations are limited to supports of non-exempt components per IWB-1220, IWC-1220, IWD-1220, and IWE-1220 in accordance with IWF-2510, "Supports Selected for Examination".

(4) The total percentage sample will be comprised of supports from each system where the individual sample sizes are proportional to the total number of non-exempt supports of each type and function within each system. Note that support type and function is captured by the Item No. suffix described in 7.2.2 below.

(5) For multiple components other than piping, within a system of similar design, function, and service, the supports of only one of the multiple components are required to be examined.

(6) To the extent practical, the same supports selected for examination during the first inspection interval shall be examined during each successive inspection interval.

7.2.2 Item Numbers

Supports have been categorized by component support function in the Fourth Ten-Year Interval Inservice Inspection Program Plan and Inservice Inspection Schedule. The support type is included as a suffix to the Item No., for example. F1.10A, F1.10B and F1.10C) and is defined as follows:

A – Class 1 Deadweight hangers and one-directional restraints

B – Class 1 Restraints (multi-directional)

C – Class 1 Thermal Movement Supports (spring hangers and snubbers)

EXAMINATION CATEGORY F-A, COMPONENT SUPPORTS				
Item Numbers	**Description**	**Number of Supports**	**Examination Method(s)**	**Relief Request Number, Code Case or Regulatory Requirement**
F1.10	Class 1	327	Visual, VT-3	
F1.20	Class 2	908	Visual, VT-3	

F1.30	Class 3	409	Visual, VT-3	
F1.40	Supports Other Than Piping Supports	53	Visual, VT-3	

7.3 Snubbers

Snubbers are functionally tested under the Snubber Program, which is administered separately. Visual, VT-3, examinations are performed on snubbers (pin-to-pin) as required by the OM Code, Subsection ISTD. Snubber attachment hardware (pin-to-pipe and pin-to-structure) is examined under the ISI Program per ASME Section XI, Subsection IWF. If welded attachments are present, they will be examined under the Class 1, 2, 3, F-A Examination Category, as applicable.

8.0 IWL Concrete Containment Requirements

The requirements for Code Class CC, Concrete Containment, are found in the Seabrook Station Unit 1 Concrete Containment Inservice Inspection Program, I3-ISI/IWL-SBK-1 which is administered separately and establishes the administrative, managerial, and implementation control for the IWL Containment Inspection Program Plan.

9.0 Augmented and Other Programs

This section identifies augmented inspection programs maintained within the ISI Program that are not required by ASME Section XI. However, due to the nature of the augmented requirements, these programs have been included within the ISI Program. These augmented programs satisfy NRC requirements, operating experience, engineering judgment, etc. Augmented program revisions or deviations shall be governed by the referenced documents. The following is the detailed description of the Seabrook Station Unit 1 Inservice Inspection Program Plan Basis for Augmented Examination of additional components and systems.

9.1 Class 1 Components

9.1.1 Reactor Coolant Pump Flywheels

The Seabrook Reactor Coolant Pump Flywheels will be examined in accordance with Seabrook Technical Specification 6.7.6.m, which requires the following examinations:

Each reactor coolant pump flywheel shall be inspected at least once every 20 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.

Schedule identifier – Category "AUG", Item "RG1.14"

9.1.2 Code Case N-722-1 – Additional Examinations for PWR Pressure Retaining Welds in Class 1 Components Fabricated With Alloy 600/82/182 Materials, Section XI, Division 1

The augmented examination of reactor coolant pressure boundary components fabricated with Alloy 600/82/182 in accordance with Code Case N-722-1 is mandated by 10CFR50.55a(g)(6)(ii)(E) and includes the following Seabrook Station items: RPV Bottom-Mounted Instrumentation (BMI) penetrations and Steam Generator Bottom channel head drain tube penetration. Note that Visual examinations of the RV Hot Leg Nozzle-to-Pipe Connections and RV Cold Leg Nozzle-to-Pipe Connections are no longer required because these joints have been mitigated by stress improvement (MSIP). The required inspections are limited to periodic visual examinations (VE). The required examination for the Bottom-Mounted Instrumentation is every other outage and every outage per Westinghouse recommendation for the Steam Generator bottom channel drains.

Schedule Identifier: Category "AUG", Item B15.80

Schedule Identifier: Category "AUG", Item B15.120

9.1.3 Code Case N-729-6 – Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds, Section XI, Division 1

The augmented examination of the Reactor Vessel Upper Head Nozzles Penetrations in accordance with Code Case N-729-6 is mandated by 10CFR50.55a (g)(6)(ii)(D) and includes bare metal visual (BMV) examinations of the Reactor Vessel Head; a volumetric examination (UT) and where applicable, and an eddy current examination (ET) may be used. If a surface examination is being substituted for a volumetric examination on a portion of

a penetration nozzle that is below the toe of the J-groove weld the surface examination shall be on the penetration nozzle inside and outside wetted surface.

Scheduler Identifier: Category "AUG". Item B4.10

Scheduler Identifier: Category "AUG". Item B4.20

9.1.4 Code Case N-770-5 - Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Butt Welds Fabricated with UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities

The augmented examination of Class 1 piping and nozzle dissimilar-metal butt welds in accordance with Code Case N-770-5 is mandated by 10CFR50.55a(g)(6)(ii)(F) and include the pressurizer nozzle-to-safe end butt welds for the Surge, Safety A, Safety B, Safety C, Relief, and Spray nozzles which were mitigated with a full structural weld overlay (SWOL) applied in Spring 2008 that includes Alloy 52, a PWSCC resistant material, and are thereby classified and volumetrically examined in accordance with Code Case N-770-5 as Inspection Item C-1. Also included are the Reactor Vessel Cold Leg Inlet and Hot Leg Outlet nozzle-to-safe end welds classified as Inspection Items D and E, based on the criteria of Code Case N-770-5, which require volumetric examinations. The "D" hot leg safe-end to nozzle weld was mitigated by stress improvement in 2009 after a flaw was identified and the remaining safe-end to nozzle welds were mitigated by stress improvement during OR17, Fall 2015.

Scheduler Identifier: Category "AUG", Item C-1

Scheduler Identifier: Category "AUG", Item D

Scheduler Identifier: Category "AUG", Item E

9.1.5 Westinghouse Technical Bulletin TB-07-02 Rev. 2, TB-07-02 Rev. 3, NSAL 18-1 with EPRI Letter 2018-027 and NSAL 20-1

1. Westinghouse Technical Bulletin TB-07-02 Rev. 3

   Westinghouse issued this Technical Bulletin for those nuclear plants with original closure heads. The Bulletin reads: "Plants that have not replaced the RV head and have upper head cross-flow velocities that are judged conducive to OD and ID thermal sleeve wear should, as identified in Table 1 (susceptible to ID and OD thermal sleeve wear), visually inspect the sleeved penetrations in the two outermost concentric rows of penetrations at their next refueling outage. If no wear is observed, subsequent inspection may be performed in conjunction with other NRC head inspection requirements". Seabrook implementation is as follows:

   Seabrook performed these examinations during Spring 2014 (OR16 - Work Order 40105740 and results summarized in AR1958085). All 32 of the thermal sleeves visually examined showed signs of wear on the

thermal sleeve OD where the sleeve exits the penetration. This inspection showed that SBK is experiencing the flow induced vibration that can lead to thermal sleeve wear (wall thinning) and potentially thermal sleeve flange wear. This completed the first portion of the examination requirement of the Technical Bulletin.

Due to the observed wear identified during OR16, the scope from TB-07-2 Rev 3 was included in the CC N-729-4 RPV under head ultrasonic examination. A visual examination and wear measurement were performed for the ID/OD RPV head thermal sleeve during the Spring 2020 OR20 refueling outage. Where OD and ID wear was observed, the thermal sleeve with the worst wear was ultrasonically measured to determine the wear scar. The most significant wear was located at the center penetrations 1-9. The next recommended examination is scheduled for Spring 2024 (OR25) and tracked per AR02353824.

2. Nuclear Safety Advisory Letter NSAL 18-1

On May 24, 2018, Westinghouse reported of a potential defect per 10CFR Part 21 (EN# 53422, Adams Accession No. ML18143B678 and Seabrook's documentation of the potential defect, AR02265706) associated with thermal sleeve wear. Operating experience (OE) has shown that wear of the thermal sleeve in the control rod drive mechanism (CRDM) penetration tube could result a severed thermal sleeve flange and a stuck control rod. Subsequently, Westinghouse issued a Nuclear Safety Advisory Letter NSAL 18-1 which provides inspection recommendation to detect thermal sleeve flange wear prior to failure, based on plant design and age of the RV head. NSAL 18-1 was issued to provide timely inspection recommendations to identify thermal sleeve flange wear prior to flange separation based on reactor design (T-Hot Heads and T-Cold Heads) and operating time (EFPY) for the installed RV head. The NSAL 18-1 classified Seabrook in the higher susceptibility Table I list of plants (T-Cold RV heads) for RV head thermal sleeve flange wear. The higher susceptibility is due to high core bypass flow to the RV upper head for T-Cold RV heads, which results in higher flow induced vibration and greater thermal sleeve flange wear.

The Westinghouse Technical Bulletin also required Seabrook "To check for upper flange wear, plants indicated with partial-length CRDM thermal sleeves in Table 1 (Seabrook) should perform measurements of the vertical location of the thermal sleeve guide funnels during their next outage after 25 effective-full-power years (EFPY) or prior to (and including) the outage season of spring 2017 (*whichever occurs second*). At the fall 2018 RFO (OR19), Seabrook will have 24.49 EFPY on the installed RV head. The NSAL states that no action is needed until the plant has exceeded 25 EFPY on the installed head. However, EPRI Letter 2018-027 upgraded the NSAL18-1 requirement to a NEI 03-08 "Needed Recommendations" and changed the NSAL initial inspection recommendations timing from 25 EFPY to 20 EFPY.

3. SEA AR2272677-01 Fall 2018 OR19 NEI 03-08 "Needed Recommendations":

   NSAL 18-1:

   Recommendation 1.a) Prior to performing measurements of flange wear, plants should establish measurement acceptance criteria to prevent thermal sleeve flange separation. The acceptance criteria established in PWROG-16003-P can be used for assessing the wear condition. These criteria were developed based on the thermal sleeve flange separation and was not considered a safety significant event. As such, the criteria were developed to prevent separation during normal/upset operation conditions and did not consider faulted conditions. However, a preliminary evaluation shows that load increases associated with faulted conditions can likely be offset by reductions in analysis conservatisms such that these criteria will remain applicable upon inclusion of faulted loads. PWROG-16003-P will be updated to include faulted conditions in the acceptance criteria.

   Recommendation 2.a) During OR19 (Fall 2018) perform measurements of the lowering of all thermal sleeves using the methods such as laser scanning to resolve small elevation differences. This will establish a baseline for the plant which can be used to assess the current condition of the thermal sleeves and to determine plant-specific wear rates which can be used in establishing the frequency of conducting subsequent measurements.

   Seabrook performed laser measurements of the potential thermal sleeve drop during the OR19 Fall 2018 refueling outage. Wear was identified on the CRDMs closest to the center of the reactor vessel closure head (RVCH) at penetrations 7, 8, 15, 5 and 6. The highest measured wear is 0.595-inches at penetration 7. There is a total of 5 (five) penetrations exceeding 0.500-inches of wear. AR02273689 was written to track the laser measurement examinations, evaluate and track frequency. The next examination is scheduled for OR21 (Fall 2021). The as-built measurements and nominal values are located in FP52819, FP52820 and FP56128.

   Recommendation 3.a) In the event of a plant shutdown between refueling outages, without head removal and prior to the first measurement of thermal sleeve flange wear, perform rod exercises to ensure that the rods move freely in and out of the core prior to restart. For example, the standard Technical Specifications require exercising each individual control rod by moving each control rod ten steps in either direction.

4. SEA AR02345224 Fall 2021 OR21 NSAL 20-1 Recommendation:

   August 14, 2020, Westinghouse issued NSAL-20-1, "Reactor Head Control Rod Drive Mechanism Penetration Thermal Sleeve Cross-sectional Failure." Seabrook is susceptible to this failure when combined with the thermal sleeve wear discussed in NSAL-18-1. Due to the observed wear measurements during the Fall 2018 (OR19) laser measurements, NSAL-20-1 recommends performing a visual examination similar to a VT-3 one-cycle before reaching the 0,80-inch flange lowering criterion. Seabrook will perform a visual examination during the Fall 2021 (OR21) refueling outage as well as performing laser measurements to identify changes in the results from OR19. Reference (AR02303559 - WO 40652959 and AR02349520 -WO 40711403)

   Scheduler Identifier: Category "AUG", Item TB-07-2

   Scheduler Identifier: Category "AUG", Item NSAL-18-1

   Scheduler Identifier: Category "AUG", Item NSAL-20-1

9.1.6 MRP-146 - Management of Thermal Fatigue in Normally Stagnant Non-Isolable RCS Branch Lines

This report provides needed guidelines and other good practice recommendations for evaluation and inspecting regions in normally stagnant PWR reactor coolant system branch lines where there may be potential for thermal fatigue cracking that could lead to leakage and forced plant outages. Per the implementation protocol of the NEI 03-08 initiative, these guidelines are "needed" actions for PWR licensees.

Scheduler Identifier: Category "MRP-146", Item MRP-146

9.1.7 WCAP-16913-P - Operability Assessment and Plant Applicability Evaluation for Pressurizer Heater Sleeve Leakage in Westinghouse Designed Pressurizers

This report provides "needed" requirements necessary to address the potential for primary coolant leakage from pressurizer heater sleeves as the result of circumferentially oriented stress corrosion cracking, which could result in heater sleeve ejection if not detected before the cracks reach the critical flaw size. Each PWR with stainless steel heater sleeves is required to conduct a visual inspection (VT-2 in accordance with IWA-2212 of Section XI of the ASME Code) of the visible, without removal of insulation, portion of all heater sleeves and adjacent and nearby insulation for evidence of primary coolant leakage of all heater sleeves each refueling outage after January 1, 2010. Per the implementation protocol of the NEI 03-08 initiative, these guidelines are "needed" actions for PWR licensees.

Scheduler Identifier: Category "AUG", Item WC16913P

9.2 Class 2 Components

9.2.1 NRC Bulletin 79-13 and Information Notice 93-20

Augmented Feedwater Examinations, as a result of a continuation of NRC Bulletin 79-13, and NRC Information Notice 93-20, Thermal Fatigue Cracking of Feedwater Piping to Steam Generators. Seabrook will perform a continuous ultrasonic examination starting at the Feedwater Nozzle ramp and extending out to a point of 6 inches on the elbow. This examination is required on one steam generator nozzle ramp area every refueling outage. Examinations will be performed in conjunction with the Code examination schedule.
Scheduler Identifier: Category "AUG", Item IE79-13

9.2.2 Assessment of RHR Mixing Tee Thermal Fatigue in PWR Plants [MRP-192]

This report provides "good practice" recommendations for evaluation and inspecting all PWR RHR mixing tee welds within at least four internal pipe diameters downstream from the mixing tee junction point, including the mixing tee downstream weld where there may be potential for thermal fatigue cracking that could lead to leakage and forced plant outages. Per the implementation protocol of the NEI 03-08 initiative, these guidelines are "good practice" actions for PWR licensees.

On May 28, 2015, MRP 2015-019 was published requesting expansion of the examination volume requirement. Due to possible under low branch flow conditions, cracking could initiate at upstream piping welds. Based on these observations, the recommended examination volume is being expanded to include areas of observed and potential cracking in the two upstream welds. (AR 02051823).

Seabrook will examine the welds on a 10-year frequency. The next examination is scheduled for Spring 2025 (OR25).

Scheduler Identifier: Category "AUG", Item MRP-192

9.2.3 Risk Informed BER Piping (RI-BER)

For main steam and feedwater piping penetrating containment, no breaks were postulated between the first pipe whip restraint inside the containment and the five-degree restraint outside containment. To protect against postulated piping failures, this piping is subject to augmented inservice inspection as defined in the Risk-Informed ISI Break Exclusion Region (BER) evaluation, EE-07-035. This is a separate program from the Risk Informed ISI Program. This requirement is identified in the USFAR 6.6.8.

Seabrook has 42 welds selected in the High Energy line break exclusion category to be examined within the 10-yr inservice inspection interval. It should be noted that Risk-Informed Break Exclusion Region (RI-BER) application is not subsumed by the RIS_B application. Even though both

programs address the performance of risk-informed examinations on high energy piping, there are distinct differences such as the 4" NPS size cut-off in the RIS_B application. Therefore, the RI-BER application shall remain in effect, although the RI-BER and RIS_B applications may be performed concurrently.

Scheduler Identifier: Category "AUG", Item RI-BER

10.0 Evaluation/Acceptance Criteria

NextEra Energy will perform non-destructive examinations using visual, surface (Penetrant and Magnetic Particle), and volumetric (Ultrasonic, Radiography, and Eddy Current) techniques. Other NDE techniques may be utilized when required.

During inservice inspections, NDE indications are evaluated against the acceptance standards of ASME Section XI. Components with indications that do not exceed the acceptance criteria will be considered acceptable for continued service. Additional examinations are not required.

Examinations that reveal indications shall be evaluated in accordance with Articles IWA-3000, IWB-3000, IWC-3000, IWD-3000 and IWF-3000, as applicable.

10.1 Supplemental Examinations

Examinations that detect flaws/conditions that require evaluation in accordance with the requirements of IWB-3100, IWC-3100 or IWF-3100, may be supplemented by other examination methods and techniques within the limits specified by IWB-3200, IWC-3200 or IWF-3200.

10.2 Additional Examinations

Examinations that reveal flaws or relevant conditions that exceed the referenced acceptance standard, shall be extended to include additional examinations during the current outage. The additional examination requirements of IWB-2430, IWC-2430, IWD-2430, or IWF-2430, (as applicable) shall be performed as determined by Nuclear Engineering.

10.3 Successive Examination for Components

Where components are accepted for continued service by analytical evaluation, IWB-2420(b), IWC-2420(b), IWD-2420(b) and IWF-2420(b), the area containing the flaws or component support shall be subsequently reexamined in accordance with the following:

10.3.1 Class 1 Components (IWB-2420)

If a component is accepted for continued service by analytical evaluation, the areas containing flaws or relevant conditions shall be reexamined during the next three inspection periods listed in the schedule of the Inspection Program of IWB-2400. If the flaws or relevant conditions remain essentially unchanged for three successive inspection periods, the component examination schedule will revert to the original schedule of successive inspections. Alternatively,

acoustic emission may be used to monitor growth of existing flaws in accordance with IWA-2234. For vessel welds, the three successive inspections are not required if the conditions in IWB-2420(b)(1) and (2) are met.

10.3.2 **Class 2 Components (IWC-2420)**

If a component is accepted for continued service by analytical evaluation, the areas containing flaws or relevant conditions shall be reexamined during the next inspection period listed in the schedule of the Inspection Program of IWC-2400. If the flaws or relevant conditions remain essentially unchanged for the next inspection period, the inspection schedule will revert to the original schedule of successive inspections. Alternatively, acoustic emission may be used to monitor growth of existing flaws in accordance with IWA-2234. For vessel welds, the successive inspection is not required the conditions in IWC-2420(b)(1) and (2) are met.

10.3.3 **Class 3 Components (IWD-2420)**

If a component is accepted for continued service by analytical evaluation, the areas containing flaws or relevant conditions shall be reexamined during the next inspection period listed in the schedule of the Inspection Program of IWD-2400. If the flaws or relevant conditions remain essentially unchanged or the flaw growth is within the growth predicted by the analytical evaluation, for the next inspection period, then the component examination schedule may revert to the original schedule of successive inspections or the inspection interval defined by the analytical evaluation, whichever is limiting.

10.3.4 **Component Supports (IWF-2420)**

If a component support is accepted for continued service by analytical evaluation, the component support shall be reexamined during the next inspection period listed in the schedule of the Inspection Program of IWF-2410. If the examinations do not require additional corrective measures during the next inspection period, the inspection schedule will revert to the original schedule of successive inspections.

11.0 Repair/Replacement Activities

The requirements of ASME Section XI, 2013 Edition and the Repair and Replacement Program for Seabrook Station Unit 1 shall be met for Class 1, 2, 3, MC components and their supports and Class CC components. MA 6.2, "ASME Section XI Repair/Replacement Program" details specific requirements for the repair, replacement, or modification of ISI components and component supports.

12.0 Relief Requests

A relief request is required when there are situations where Code requirements cannot be met or where an alternative is desired. Relief Requests shall be prepared using the NEI guidance for the standard format for requests from commercial reactor licenses pursuant to 10CFR50.55a. Relief requests will be reviewed for completeness, technical adequacy, and implementation. Reviewers may be the site ISI Coordinators, the ISI Specialist, NDE personnel, and any other group the relief request may affect. Typical examples where relief requests are submitted are as follows:

12.1 For Class 1 and 2 weld examinations, relief is required if 90% or less of the Code required coverage was achieved (if unable to meet Code examination requirements).

12.2 The request for use of an alternative, hardship or impracticality to a requirement listed within ASME Section XI. An example is the use of a Code Case that has not been approved for use by the latest revision of NRC Reg. Guide 1.147.

13.0 Boundary Classifications

The code required boundaries for all Class 1, 2, and 3 systems are denoted on Piping and Instrument Diagrams (P&IDs). A Listing of the P&IDs is included in Appendix C.

14.0 Weld/Support Location Maps

Weld/Support location maps indicating components, areas, weld locations, and other information pertinent to the performance of the inservice nondestructive examinations are controlled. A listing of weld/support location maps applicable to the scheduled components is included in Appendix D and E.

15.0 Addition of Welds, Components, and Components Supports

The rules for selection and scheduling of examinations for new welds and other items shall be in accordance with subparagraphs IWB-2411(b), IWC-2411(b), IWD-2411(b). The rules for selection and scheduling of examinations for new component supports shall be in accordance with subparagraph IWF-2410(c).

16.0 Ultrasonic Calibration Blocks

Ultrasonic calibration blocks for each component subject to volumetric examination are maintained at the plant site. The exception to this requirement would be blocks created for special configurations or alternative blocks allowed by Appendix VIII for calibration. These blocks may be used between sites, as applicable. Blocks from other sources may be used, if qualified. A listing of applicable ultrasonic calibration blocks is included in Appendix E.

17.0 Records

17.1 General

Records of Inservice Inspection Program Plans, outage schedules, calibration standards, examination and test procedures, results of activities, final reports, certifications, and corrective actions will be developed and maintained in accordance with IWA-6000 or the alternative requirements in Code Case N-532-5.

17.2 Nondestructive Examinations

Completed NDE examination data packages shall be submitted to the ISI Specialist following completion of the inservice examination activity.

17.3 Final Reports

17.3.1 Final reports shall be generated for the following activities:

(a) Nondestructive examination activities performed on Class 1, 2, and 3 systems, components and their supports.

(b) Nondestructive examination activities performed on Class MC systems

(c) Snubber examinations and tests

(d) System pressure tests

(e) Eddy current examinations

(f) Repairs and replacements

17.3.2 The final reports shall contain, as a minimum, the information required in the NIS-1 or OAR-1 (per Code Case N-532-5 as accepted in NRC Reg. Guide 1.147).

17.4 Inservice Inspection Summary Report

NextEra Energy shall forward a summary report, Forms NIS-1 or OAR-1, of the ISI activity to the Nuclear Regulatory Commission in accordance with IWA-6230 or Code Case N-532-5, which is accepted in NRC Reg. Guide 1.147, as applicable.

17.5 NIS-2 or NIS-2A Reports

NIS-2 Forms or an NIS-2A Form per Code Case N-532-5 will be completed for each repair or replacement activity.

18.0 References

The Inservice Inspection Program Plan for Class 1, 2, and 3 components and component supports were developed after reviewing the following documents and procedures. Limitations of design, geometry, and materials of construction may have an impact on the implementation of some of these documents.

18.1 United States Code of Federal Regulations, Title 10, Part 50, Section 55a, (10CFR50.55a), Codes and Standards, published January 1, 2020, as modified by Final Rules dated March 16, 2020 [85 FR 14756] and May 4, 2020, [85 FR 26576], June 3, 2020 [85 FR34088] and October 16, 2020 [85 FR 65662].

18.2 American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, Division 1, 2013 Edition.

18.3 American Society of Mechanical Engineers (ASME) Section XI Code, 2010 Edition.

18.4 USNRC Regulatory Guide 1.26 - Quality Group Classifications and standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants, Revision 3, dated February 1976.

18.5 USNRC Regulatory Guide 1.147, Inservice Inspection Code Case Acceptability ASME Section XI, Revision 19.

18.6 USNRC Regulatory Guide 1.178 - An Approach for Plant-Specific Risk Informed Decision Making Inservice Inspection of Piping.

18.7 USNRC Regulatory Guide 1.193 - ASME Code Cases Not Approved for Use, Revision 6.

18.8 USNRC Bulletin 79-13, Cracking in Feedwater System Piping.

18.9 USNRC Information Notice 93-20, Thermal Fatigue Cracking of Feedwater Piping to Steam Generators, dated March 24, 1993.

18.10 Nondestructive Evaluation: Performance Demonstration Initiative (PDI) Comparison to ASME Section XI, Appendix VIII 2013 Edition and 10CFR50.55a, Year 2017. EPRI, Palo Alto, CA 2012 1026510.

18.11 Seabrook Station Updated Final Safety Analysis Report, Revision 19.

18.12 Seabrook Station Technical Specifications, December 2019.

18.13 Safety Evaluation Report Related to the License Renewal of Seabrook Station, review of information through July 2018.

18.14 Generic Aging Lessons Learned (GALL) Report.

18.15 Seabrook Station Document – MA 6.1, "Implementation Procedure for Inservice Inspection of Class 1, 2, and 3 Components and Primary Containment Structures".

18.16 Seabrook Station Document – MA 6.2, "ASME Section XI Repair/Replacement Program."

18.17 NextEra Energy Nuclear Fleet Procedure – EN-AA-106, "Renewed License Program".

18.18 MRP-146, "Materials Reliability Program: Management of Thermal Fatigue in Normally Stagnant Non-Isolable Reactor Coolant System Branch Lines (MRP-146, Revision 2)", EPRI, Palo Alto, CA: 2016. 3002007853.

18.19 Nuclear Energy Institute NEI 04-05, "Living Program Guidance to Maintain Risk-Informed Inservice Inspection Programs for Nuclear Plant Piping Systems", April 2004.

18.20 Nuclear Energy Institute NEI 03-08, Guideline for the Management of Materials Issues", Revision 3, dated February 2017.

18.21 MRP-192 – "Materials Reliability Program: Assessment of RHR Mixing Tee Thermal Fatigue in PWR Plants (MRP-192, Revision 3)", EPRI, Palo Alto, CA: 2018. 3002013266.

18.22 WCAP-16913-P, Revision 1 "Operability Assessment and Plant Applicability Evaluation for Pressurizer Heater Sleeve Leakage in Westinghouse Designed Pressurizers" April 2009, PA-MSC-0316.

18.23 Seabrook Station Document 3rd Interval-IWE-SBK-1-Program Plan, "Seabrook Station Unit 1 Third IWE Inspection Interval Program Plan."

18.24 Seabrook Station Document 3rd Interval-IWL-SEA-Prog Plan, "Seabrook Unit 1 Third Interval Containment Concrete IWL Program".

18.25 NextEra Energy Nuclear Fleet Procedure – ER-AA-118, "ASME Section XI Inservice Inspection Program".

18.26 NSAL-18-1 Revision 0, "Thermal Sleeve Flange Wear Leads to Stuck Control Rod"

18.27 TB-07-2, Revision 3, "Reactor Vessel Head Adapter Thermal Sleeve Wear"

18.28 EPRI Topical Report TR-112657, "Revised Risk-Informed Inservice Inspection Evaluation Procedure", Revision B-A, December 1999

18.29 ASME Code Case N-716, "Alternative Piping Classification and Examination Requirements, Section XI, Division 1", Approval Date: April 19, 2006

18.30 ASME Code Case N-716-1, "Alternative Classification and Examination Requirements, Section XI, Division 1", Approval Date: January 27, 2013

Appendix A Seabrook Station Unit 1 Relief Requests		
Relief Request Number	Description	Status
4IR-01	Examination Category F-A, Pressurizer Seismic Supports	In the Course of Development
4IR-02	Code Case N-729-6 Relief From Ultrasonic Examination Distances on Five Penetrations (74, 75, 76, 77, and 78)	In the Course of Development
4IR-03	Proposed Alternative for the Use of Encoded Phased Array Ultrasonic Examination Techniques in Lieu of Radiography for Ferritic and Austenitic Welds	In the Course of Development

Relief Request No. 4IR-01

Examination Category F-A, Pressurizer Seismic Supports

(Reserved for Future Incorporation)

Relief Request No. 4IR-02

Code Case N-729-6 Relief from Ultrasonic Examination Distances on Five Penetrations (74, 75, 76, 77, and 78)

(Reserved for Future Incorporation)

Relief Request No. 4IR-03

Proposed Alternative for the Use of Encoded Phased Array Ultrasonic Examination Techniques In Lieu of Radiography for Ferritic and Austenitic Welds

(Reserved for Future Incorporation)

Appendix B
Risk Informed
1st Period Update

(Reserved for Future Incorporation)

Appendix C Seabrook Station Boundary Classification Drawings	
P & ID Number	**P & ID Title**
1-MS-D20581	Main Steam System Main Steam Headers
1-MS-D20582	Main Steam System Emergency Feedwater Pump Supply
1-MS-D20583	Main Steam System Manifold & H.P. Turbine Piping
1-MS-D20587	Main Steam System Main Steam Drains
1-NG-D20135	Nitrogen Gas
1 NG D20136	Nitrogen Gas
1-RC-D20841	Reactor Coolant System Loop No. 1
1-RC-D20842	Reactor Coolant System Loop No. 2
1-RC-D20843	Reactor Coolant System Loop No. 3
1-RC-D20844	Reactor Coolant System Loop No. 4
1-RC-D20845	Reactor Coolant System Reactor Vessel
1-RC-D20846	Reactor Coolant System Pressurizer
1-RH-D20662	Residual Heat Removal System Train A
1-RH-D20663	Residual Heat Removal System Train B Cross-Tie
1-RMW-D20360	Reactor Make Up Water System
1-SA-D20652	Service Air System Misc. Buildings
1-SB-D20626	Steam Generator Blowdown
1-SF-D20482	Spent Fuel Pool Cooling and Clean-Up System
1-SF-D20484	Spent Fuel Pool Cooling and Clean-Up System
1-SI-D20446	Safety Injection System Intermediate Head Injection System
1-SI-D20447	Safety Injection System High Head Injection System
1-SI-D20450	Safety Injection System Low Head Injection (Accumulators) Detail
1-SS-D20518	Sample System Nuclear Normal Operation
1-SS-D20519	Sample System Nuclear Sample Panel CP-166A
1-SS-D20520	Sample System Nuclear-Post Accident
1-SW-D20794	Service Water System Nuclear
1-SW-D20795	Service Water System Nuclear

Appendix C Seabrook Station Boundary Classification Drawings	
P & ID Number	**P & ID Title**
1-SW-D20796	Service Water System Nuclear
1-VG-D20780	Vent Gas System
1-WLD-D20218	Waste Processing Liquid Drains Reactor Coolant System
1-WLD-D20219	Waste Processing Liquid Drains Containment Building Sumps
1-WLD-D20221	Waste Processing Liquid Drains RHR Equipment Valves 1 & 2
1-WLD-D20222	Waste Processing Liquid Drains Primary Auxiliary Bldg.

Appendix D Seabrook Station Isometric and Component Drawings	
Drawing Number	**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-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
650104-ISI	Reactor CRDM Weldment Platform
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

Appendix D Seabrook Station Isometric and Component Drawings	
Drawing Number	**Drawing Title**
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
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

Appendix D Seabrook Station Isometric and Component Drawings	
Drawing Number	**Drawing Title**
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

Appendix D Seabrook Station Isometric and Component Drawings	
Drawing Number	**Drawing Title**
1-NHY-800366ISI	CS System Line No. 366
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

Appendix D Seabrook Station Isometric and Component Drawings	
Drawing Number	**Drawing Title**
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

Appendix E Seabrook Station Unit 1 Ultrasonic Calibration Blocks		
Calibration Block ID	**Material Specification**	**Block Description**
06-02-02		Pressurizer Head-to-Shell Weld
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 Nozzle
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-F	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

Appendix E Seabrook Station Unit 1 Ultrasonic Calibration Blocks		
Calibration Block ID	**Material Specification**	**Block Description**
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 IR
SB-PDI-304SS		Alternative ASME Block
SB-PDI-316SS		Alternative ASME Block
SB-PDI-516CS		Alternative ASME Block