North Atlantic

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The Northeast Utilities System

July 27, 2001

Docket No. 50-443

NYN-01054

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Seabrook Station
Inservice Inspection Program Revised and
New Relief Requests for ASME Section XI Requirements

North Atlantic Energy Service Corporation (North Atlantic) hereby submits in Enclosure 1, four revised relief requests and one new relief request, associated with the First Ten-Year Interval Inservice Inspection (ISI) Program requirements as stated within Section XI of the 1983 Edition through the Summer 1983 Addenda of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code.

North Atlantic implemented its Second Ten-Year Interval ISI Program on August 18, 2000. Upon completion of the First Ten-Year Interval ISI Program, North Atlantic determined that certain ASME Code requirements were impractical to meet. Pursuant to 10CFR50.55a(g)(5)(iv), North Atlantic is requesting relief from certain ASME Code requirements as follows:

- Revised relief request IR-1 (Revision 1) requests Nuclear Regulatory Commission (NRC) approval for relief from examination coverage requirements for certain specified welds associated with the Reactor Vessel Head (RVH) and Reactor Vessel Nozzles (RVN). One RVH weld examination is limited due to interference of the control rod drive shield and the reactor vessel lifting lugs. A second RVH weld examination is limited due to the close proximity of the weld to the reactor vessel head flange. Four RVN welds have limited coverage due to the geometric configuration of the knuckle region. A similar second interval relief request (2IR-01) was approved for Seabrook Station by the NRC in a letter dated March 21, 2001 (TAC No. MA9902).

A047

- Revised relief request IR-2 (Revision 1) requests NRC approval for relief from examination coverage requirements for certain specified welds associated with the Pressurizer Bottom Head to Shell (PBHS), Pressurizer Nozzle (PN), Steam Generator Tubesheet to Head (SGTH), and Steam Generator Primary Nozzle (SGPN). The one PBHS weld examination is limited due to physical obstruction and geometric configuration. The six PN welds have limited examination coverage due to nozzle to shell geometry. The one SGTH weld examination is limited due to physical obstruction from the four Steam Generator supports. The two SGPN welds have limited examination coverage due to nozzle to shell geometry and the inner diameter cladding interference. A similar second interval relief request (2IR-02) was approved for Seabrook Station by the NRC in a letter dated March 21, 2001 (TAC No. MA9902).

- Revised relief request IR-3 (Revision 1) requests NRC approval for relief from examination coverage requirements for certain specified welds associated with Class 1 piping, Pressurizer Nozzle to Safe Ends (PNSE), and the Steam Generator Nozzle to Safe Ends (SGNSE). The twelve Class 1 piping welds have limited examination coverage due to design, geometric configuration, and material used during construction. The five PNSE welds have limited examination coverage due to design and geometric configuration. The eight SGNSE welds have limited examination coverage due to design, geometric configuration, and material used during construction.

- Revised relief request IR-4 (Revision 1) requests NRC approval for relief from examination coverage requirements for certain specified welds associated with the Excess Letdown Heat Exchanger (ELHE) and the Steam Generator Main Steam Outlet Nozzle Inner Radius (SGMSONIR). The one ELHE weld has limited examination coverage due to vessel head to flange geometry and permanent physical obstruction. The one SGMSONIR weld has limited examination coverage due to design of the nozzle. A similar second interval relief request (2IR-04) was approved for Seabrook Station by the NRC in a letter dated March 21, 2001 (TAC No. MA9902).

- Relief request IR-12 (Revision 0) requests NRC approval for relief from surface examination requirements on four pressurizer welded attachments and the visual examination requirements for the associated supports. The area where the attachments and supports are located has been determined to be not safely accessible. A similar second interval relief request (2IR-12) was approved for Seabrook Station by the NRC in a letter dated March 21, 2001 (TAC No. MA9902).

NRC review and approval of the subject relief requests is requested by January 31, 2002.

Should you have any questions regarding this letter, please contact Mr. James M. Peschel, Manager - Regulatory Programs, at (603) 773-7194.

Very truly yours,

NORTH ATLANTIC ENERGY SERVICE CORP.

Ted C. Feigenbaum
Executive Vice President
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cc: H. J. Miller, NRC Region I Administrator
G. F. Wunder, NRC Project Manager, Project Directorate I-2
G.T. Dentel, NRC Senior Resident Inspector

ENCLOSURE 1 TO NYN-01054

Seabrook Nuclear Power Station Unit No. 1

Relief From Inservice Inspection Requirements

IR-1, Revision 1

Components for which Relief is Requested:

Six Reactor Vessel Welds

Component Identification:

RC RPV 103-101
RC RPV 101-101
RC RPV 107-121-A
RC RPV 107-121-D
RC RPV 107-121-E
RC RPV 107-121-H

ASME Code Class:

1

ASME Section XI Examination Category:

Table IWB-2500-1 Category B-A, Item No. B1.21
Table IWB-2500-1 Category B-A, Item No. B1.40
Table IWB-2500-1 Category B-D, Item No. B3.90

ASME Section XI Code Requirements:

ASME Section XI, 1983 Edition through the Summer 1983 Addenda, Table IWB-2500-1, Category B-A, Pressure Retaining Welds in Reactor Vessel, Item No. B1.21, which requires volumetric examination of essentially 100% of the weld length, and Item No. B1.40, which requires volumetric and surface examination of essentially 100% of the weld length. Category B-D, Full Penetration Welded Nozzles in Vessels, Item No. B3.90, which requires volumetric examination of all nozzles.

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

Basis and Justification for the Granting of Relief:

Pursuant to 10CFR50.55a(g)(5)(iv), North Atlantic has determined that due to design and geometric configuration, it is impractical to meet the Code required 100% coverage of Section XI or the alternative examination coverage requirements of Code Case N-460 on welds identified in Table 1. Advances in examination technology have been applied to maximize examination coverage, therefore, this relief request revises previously approved Relief Request IR-1 for these welds. Only those welds selected for examination and where the reduction in coverage is greater than 10% are included in this revised relief request.

Reactor Vessel Head Welds

As required by ASME Section XI, Table IWB-2500-1, Category B-A, weld RC RPV 103-101 received a volumetric examination and has limited coverage due to design (physical obstruction). The limitation is due to interference of the control rod drive (CRD) shield that limits examination to one side of the weld and the reactor vessel head lifting lugs, which cover the weld. Weld RC RPV 101-101 received a volumetric and surface examination and has limited coverage due to the close proximity of the weld to the reactor vessel head flange. The weld is sufficiently close such that only a one sided ultrasonic examination is possible. The surface examination of this weld was fully achievable.

Reactor Vessel Nozzle Welds

As required by ASME Section XI, Table IWB-2500-1, Category B-D, these welds received a volumetric examination. The four nozzle welds, RC RPV 107-121-A, RC RPV 107-121-D, RC RPV 107-121-E, and RC RPV 107-121-H have limited coverage due to the geometric configuration of the nozzle knuckle region.

In addition to the limited volumetric examination, the welds identified in Table 1 are subject to VT-2 visual examination conducted during the system leakage test each refueling outage as specified in Table IWB-2500-1, Examination Category B-P of the 1983 Edition through the Summer 1983 Addenda of ASME Section XI.

It is the North Atlantic position that previous acceptable results of volumetric examinations of coverage achieved, surface examination, visual examinations, and pressure tests performed each refueling outage provides reasonable assurance of continued structural integrity of these welds and maintains an acceptable level of quality and safety.

Alternate Examinations:

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

Applicability:

This Relief Request is applicable to the completed First Ten-Year Interval Inservice Inspection Program.

Table 1
Reactor Vessel Welds

Weld Identification	Code Item/number	Limitation	CRV Coverage
RC RPV 103-101	B 1.21	One-sided exam due to CRD Shield. Obstruction due to lifting lugs.	50%
RC RPV 101-101	B 1.40	One-sided exam due to weld proximity to head flange.	50%
RC RPV 107-121-A	B 3.90	Geometric configuration of the nozzle knuckle region.	69%
RC RPV 107-121-D	B 3.90	Geometric configuration of the nozzle knuckle region.	69%
RC RPV 107-121-E	B 3.90	Geometric configuration of the nozzle knuckle region.	69%
RC RPV 107-121-H	B 3.90	Geometric configuration of the nozzle knuckle region.	69%

Seabrook Nuclear Power Station Unit No. 1

Relief From Inservice Inspection Requirements

IR-2, Revision 1

Components for which Relief is Requested:

Seven Pressurizer Welds
Three Steam Generator Welds

Component Identification:

RC E-10 01
RC E-10 A-NZ
RC E-10 B-NZ
RC E-10 C-NZ
RC E-10 D-NZ
RC E-10 S-NZ
RC E-10 SP-NZ
RC E-11A SEAM-1
RC E-11A 2A-NZ
RC E-11A 2B-NZ

ASME Code Class:

1

ASME Section XI Examination Category:

Table IWB-2500-1 Category B-B, Item No. B2.11
Table IWB-2500-1 Category B-B, Item No. B2.40
Table IWB-2500-1 Category B-D, Item No. B3.110
Table IWB-2500-1 Category B-D, Item No. B3.130

ASME Section XI Code Requirements:

ASME Section XI, 1983 Edition through the Summer 1983 Addenda, Table IWB-2500-1, Category B-B, Pressure Retaining Welds in Vessels Other Than Reactor Vessels, and Category B-D, Full Penetration Welded Nozzles in Vessels, which require examination of essentially 100% of the weld.

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

Basis and Justification for the Granting of Relief:

Pursuant to 10CFR50.55a(g)(5)(iv), North Atlantic has determined that, due to design and geometric configuration, it is impractical to meet the Code required 100% coverage of Section XI or the alternative examination coverage requirements of Code Case N-460 on welds identified in Table 1. Advances in examination technology have been applied to maximize examination coverage, therefore, this relief request updates the relief previously approved in Relief Request IR-2 for these welds. Only those welds selected for examination and where reduction in coverage is greater than 10% are included in this revised relief request.

Pressurizer Bottom Head to Shell Weld - RC E-10 01

ASME Section XI, Table IWB-2500-1, Category B-B, requires this weld be examined volumetrically for essentially 100% of the weld length. Weld RC E-10 01 can not be examined for essentially 100% of the weld length due to design (physical obstruction) and geometric configuration. Located just above and below the weld are eight nonstructural attachments (NB-4435) used during the manufacturing process. Removal of these attachments by grinding is impractical and could negatively effect the Pressurizer vessel. There are also five 1″ diameter instrumentation nozzles located 6″ above the weld centerline, which limits coverage. In addition, the transition geometry from the lower head to shell further limits coverage. These obstructions and the geometric configuration limited the weld examination volume to 80%. This was the maximum extent achievable.

The Pressurizer bottom head to shell weld is subject to VT-2 visual examination conducted during the system leakage test each refueling outage as specified in Table IWB-2500-1, Examination Category B-P of the 1983 Edition through the Summer 1983 Addenda of ASME Section XI.

It is the North Atlantic position that the previous acceptable results of volumetric examination on 80% of the weld examination volume is representative of the entire weld. Removal of nonstructural attachments to gain examination coverage is impractical and could reduce the level of quality and safety of the Pressurizer vessel. In addition to the volumetric examination, the acceptable results of visual examinations and pressure tests performed each refueling outage provides reasonable assurance of continued structural integrity of this weld, and maintains an acceptable level of quality and safety.

Pressurizer Nozzle Welds – RC E-10 A-NZ, RC E-10 B-NZ, RC E-10 C-NZ, RC E-10 D-NZ, RC E-10 S-NZ, and RC E-10 SP-NZ

As required by ASME Section XI, Table IWB-2500-1, Category B-D, these welds receive a volumetric examination. Nozzle welds RC E-10 A-NZ through RC E-10 SP-NZ have limited coverage due to the nozzle to shell geometry. ISI drawing 1-NHY-650006 shows typical Pressurizer nozzle to stainless steel safe-end weld detail. The transition, from the carbon steel vessel nozzle to the stainless steel safe-end to the stainless steel pipe, is large over a short distance. This causes transducer sound beam propagation angle to change abruptly thereby not fully interrogating the required ASME examination volume. Each nozzle has its own unique fit-up, weld, and finish contour which presents specific individual limitations on examination volume. As depicted in Table 1, these limitations result in coverage from 53% to 77% of total examination volume.

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

In addition to the limited volumetric examinations, the Pressurizer nozzle to vessel welds are subject to VT-2 visual examination conducted during the system leakage test each refueling outage as specified in Table IWB-2500-1, Examination Category B-P of the 1983 Edition through the Summer 1983 Addenda of ASME Section XI.

It is the North Atlantic position that the previous acceptable results of volumetric examinations of Pressurizer nozzle to vessel welds RC E-10 A-NZ, RC E-10 B-NZ, RC E-10 C-NZ, RC E-10 D-NZ, RC E-10 S-NZ, and RC E-10 SP-NZ, the acceptable results of visual examinations and pressure tests performed each refueling outage provides reasonable assurance of continued structural integrity of these welds, and maintains an acceptable level of quality and safety.

Steam Generator Tubesheet to Head Weld – RC E-11A SEAM-1

As required by ASME Section XI, Table IWB-2500-1, Category B-B, requires this weld be examined volumetrically for essentially 100% of the weld length. Weld RC E-11A SEAM-1 can not be examined for essentially 100% of the weld length due to design (physical obstruction from four steam generator supports). ISI Drawing 1-NHY-650011 (Refer to Enclosure 2) shows the four steam generator support pads. These pads are approximately 18" in length and block access to this weld in four locations. These obstructions limit the weld examination volume to 78%. This was the maximum extent achievable.

Five ASME Class 2 girth seam welds on this steam generator were volumetrically examined during the 1st 10-Yr. ISI Interval. Welds RC E-11A SEAM-2, SEAM-3, SEAM-5, SEAM-6 and SEAM-8 were volumetrically examined and met ASME Code acceptance standards.

In addition to the limited volumetric examination, the Steam Generator Tubesheet to Head weld is subject to VT-2 visual examination conducted during the system leakage test each refueling outage as specified in Table IWB-2500-1, Examination Category B-P of the 1983 Edition through the Summer 1983 Addenda of ASME Section XI.

It is the North Atlantic position that the previous acceptable results of volumetric examination on 78% of the weld volume is representative of the entire weld. In addition to the volumetric examination, the acceptable results of volumetric examination of similar Class 2 girth welds on this steam generator, visual examinations, and pressure tests performed each refueling outage, provides reasonable assurance of continued structural integrity of this weld and maintains an acceptable level of quality and safety.

Steam Generator Primary Nozzle Welds – RC E-11A 2A-NZ and RC E-11A 2B-NZ

As required by ASME Section XI, Table IWB-2500-1, Category B-D, these welds receive a volumetric examination. Welds RC E-11A 2A-NZ and RC E-11A 2B-NZ have limited coverage due to the nozzle to shell geometry and the ID cladding. The small distance between the nozzle and the weld does not provide sufficient room for the ultrasonic transducer to interrogate the Code required volume of these welds. In addition, the internal cladding causes the sound to reflect back to the transducer at the base metal to cladding interface, which further reduces examination volume. The maximum achievable coverage for both of these welds is 84%. The examination volumes achieved are the maximum extent practical. It is the North Atlantic position that the achievable examination volumes are representative of the entirety of each nozzle weld.

In addition to the limited volumetric examination, the Steam Generator primary nozzle welds RC E-11A 2A-NZ and RC E-11A 2B-NZ are subject to VT-2 visual examination conducted during the system leakage test each refueling outage as specified in Table IWB-2500-1, Examination Category B-P of the 1983 Edition through the Summer 1983 Addenda of ASME Section XI.

It is the North Atlantic position that the previous acceptable results of volumetric examination of the Steam Generator primary nozzle welds RC E-11A 2A-NZ and RC E-11A 2B-NZ, the acceptable results of visual examinations and pressure tests performed each refueling outage provide reasonable assurance of continued structural integrity of this weld, and maintains an acceptable level of quality and safety.

Alternate Examinations

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

Applicability

This Relief Request is applicable to the completed First Ten-Year Interval Inservice Inspection Program.

Table 1
Nozzle and Circumferential Welds

Weld Identification	Code Item/number	Limitation	CRV Coverage
RC E-10 01	B 2.11	OD interference.	80%
RC E-10 A-NZ	B3.110	Nozzle to shell geometry and ID cladding.	67%
RC E-10 B-NZ	B3.110	Nozzle to shell geometry and ID cladding.	55%
RC E-10 C-NZ	B3.110	Nozzle to shell geometry and ID cladding.	53%
RC E-10 D-NZ	B3.110	Nozzle to shell geometry and ID cladding.	77%
RC E-10 S-NZ	B3.110	Nozzle to shell geometry and ID cladding.	63%
RC E-10 SP-NZ	B3.110	Nozzle to shell geometry and ID cladding.	72%
RC E-11A SEAM-1	B 2.40	Steam generator supports.	78%
RC E-11A 2A-NZ	B 3.130	Nozzle to shell geometry and ID cladding.	84%
RC E-11A 2B-NZ	B 3.130	Nozzle to shell geometry and ID cladding.	84%

Seabrook Nuclear Power Station Unit No. 1

Relief From Inservice Inspection Requirements

IR-3, Revision 1

Components For Which Relief Is Requested:

Twelve Class 1 Piping Welds
Five Pressurizer Nozzle to Safe End Welds
Eight Steam Generator Nozzle to Safe End Welds

Component Identification:

See Table 1 and Table 2

ASME Code Class:

1

ASME Section XI Examination Category:

Table IWB-2500-1 Category B-F, Item No. B5.40
Table IWB-2500-1 Category B-F, Item No. B5.70
Table IWB-2500-1 Category B-J, Item No. B9.11
Table IWB-2500-1 Category B-J, Item No. B9.31

ASME Section XI Code Requirements:

ASME Section XI, 1983 Edition through the Summer 1983 Addenda, Table IWB-2500-1, Category B-J and Category B-F which require examination of essentially 100% of the weld length.

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

Basis and Justification for the Granting of Relief:

Pursuant to 10CFR50.55a(g)(5)(iv), North Atlantic has determined that due to design, geometric configuration, and material structure, it is impractical to meet the Code required 100% coverage of Section XI or the alternative examination coverage requirements of Code Case N-460 on piping and safe end welds identified in the Tables 1 and 2. Advances in examination technology have been applied to maximize examination coverage, therefore, this relief request updates the relief previously approved in Relief Request IR-3 for these welds. Only those welds selected for

examination and where the reduction in coverage continues to be greater than 10% are included in this revised relief request.

Piping Welds

As required by Table IWB-2500-1, Category B-J, of ASME Section XI, these welds received a volumetric and surface examination. Original relief request IR-3 identified 28 piping welds. Twelve (12) welds achieved full examination coverage and 7 were not selected for examination in the 1st 10-Yr. ISI Interval, therefore these 19 welds are not included in this revised relief request. Three (3) welds are included in this revised relief request that did not have limitations identified during the Preservice Inspection. The 12 welds listed in the "Piping Welds" section of Table 1 of this revised relief request have limited coverage due to design, geometric configuration, and material used during construction. As identified in the original relief request IR-3, the primary examination limitation was due to the inability to achieve acceptable sound penetration through cast stainless steel fittings.

North Atlantic has aggressively pursued more reliable techniques for examination of cast stainless steel material. Since Preservice Inspection, North Atlantic has prompted or hosted multiple sessions and "Round Robin" practical demonstrations, both manual and automated, on cast stainless steel flawed and unflawed samples in an attempt to find a more reliable technique. North Atlantic also hosted the NRC and their contractors at the cancelled Seabrook Unit II, where the NRC evaluated many techniques on actual piping and flawed samples. Results of the NRC evaluations validated that the reliability of a full volume ultrasonic examination is tenuous. The thickness and metallurgical properties of this material make examination a "best effort" with current commercially available technology.

In an attempt to meet Code calibration requirements, two manufacturers of ultrasonic transducers were contacted and provided with the North Atlantic CF8A calibration block SB-RC-5. Both manufacturers experimented with various transducer element types, shapes, focusing, and contouring to produce the highest signal to noise ratio on the calibration block ID notches. After a few initial failures to meet even a minimal 2:1 signal to noise ratio, two transducer configurations were developed which provided a 3:1 signal to noise ratio from the ID notch. They were dual, focused, and contoured 45-degree RL transducers. These search units were produced and used for the cast stainless steel weld examinations.

North Atlantic also enlisted the assistance of the EPRI NDE Center prior to refueling outage OR06 to evaluate supplemental techniques and equipment. During the evaluation, it was determined that when utilizing certain 40-degree dual RL transducers, there was a reasonable reliability of detecting crack tips, which were at least 50% through wall. This technique relied on the simple premise that minimizing the beam path also minimized the detrimental metallurgical effects of cast stainless steel material. This technique was used to supplement

the ASME Section XI examination where indications were noted. This technique was also supported by a Westinghouse evaluation that provided a basis for acceptance of flaws less than 50 percent through wall. No flaws were discovered utilizing this technique during conduct of examinations.

The NDE procedures and techniques used were approved by the cognizant NDE Level III and reviewed by the Authorized Nuclear Inservice Inspector (ANII). The ANII, NRC, and NDE Level III witnessed examinations.

Pressurizer Nozzle to Safe End Welds

As required by Table IWB-2500-1, Category B-F, of ASME Section XI, these welds received a volumetric examination. There are six safe end welds that have the configuration of Pressurizer Nozzle to Pipe. Of the six safe end welds, one weld received 95% examination coverage, which meets the alternate coverage requirements of Code Case N-460. Design and geometric configuration limit the ultrasonic examination coverage on the remaining five safe end welds. The contour of the nozzle OD prevents examination from the nozzle side and insufficient axial scanning distance on the safe end side prevents obtaining Code required coverage. None of these welds were identified as having examination coverage limitations in the original relief request IR-3. During Preservice Inspection, these welds were credited using results obtained from ASME Section III radiographs and hence did not receive a baseline ultrasonic examination.

Steam Generator Nozzle to Safe End Welds

As required by Table IWB-2500-1, Category B-F, of ASME Section XI, these welds received a volumetric examination. The eight safe end welds have a carbon steel nozzle to cast stainless steel elbow design. Design, geometric configuration, and material used during construction limit examination coverage on these carbon steel nozzles to cast stainless steel elbow welds.

As identified in the above Piping Weld paragraph, North Atlantic has pursued techniques for examination of cast stainless steel. This examination limitation affects seven of the nozzle to elbow welds. Other limitations on these welds are due to design and geometric configuration.

In addition to the limited volumetric examination, the piping and safe end welds identified in Tables 1 and 2 received a surface examination and a VT-2 visual examination which were conducted during the system leakage test each refueling outage as specified in Table IWB-2500-1, Examination Category B-P of the 1983 Edition through Summer 1983 Addenda of ASME Section XI.

It is the North Atlantic position that the previous acceptable results of volumetric examinations, surface examinations, visual examinations, and pressure tests performed each refueling outage provide reasonable assurance of continued structural integrity of these welds and maintains an acceptable level of quality and safety.

Alternative Examination:

There are no alternative examinations proposed. The Code required volumetric examination has been completed to the maximum extent practical.

Applicability

This Relief Request is applicable to the completed First Ten-Year Interval Inservice Inspection Program.

Table 1
Piping Welds

Weld Identification	Code Item/number	Limitation	CRV Coverage
Loop 1			
1-RC-0002-01-06	B9.11	Geometric configuration coupled with transducer size and non-parallel surfaces.	7%
1-RC-0003-01-03	B9.11	Weld configuration and scanning limited to one side due to cast stainless steel elbow.	61%
Loop 2			
1-RC-0005-01-06	B9.11	Geometric configuration coupled with transducer size and non-parallel surfaces.	7%
1-RC-0006-01-03	B9.11	Weld configuration and scanning limited to one side due to cast stainless steel elbow.	61%
Loop 3			
1-RC-0008-01-06	B9.11	Geometric configuration coupled with transducer size and non-parallel surfaces.	7%
1-RC-0009-01-03	B9.11	Weld configuration and scanning limited to one side due to cast stainless steel elbow.	61%

Table 1 (continued)
Piping Welds

Weld Identification	Code Item/number	Limitation	CRV Coverage
Loop 4			
1-RC-0011-01-06	B9.11	Geometric configuration coupled with transducer size and non-parallel surfaces.	7%
1-RC-0012-01-03	B9.11	Weld configuration and scanning limited to one side due to cast stainless steel elbow	61%
Branch Piping			
RC-0003-01-05B	B9.31	Weld configuration and one sided scan only	66%
RC-0006-01-03B	B9.31	Weld configuration and one sided scan only	66%
RC-0009-01-04B	B9.31	Weld configuration and one sided scan only	66%
RC-0012-01-04B	B9.31	Weld configuration and one sided scan only	66%

Table 2
Safe End Welds

Weld Identification	Code Item/number	Limitation	CRV Coverage
Pressurizer			
RC-E-10-A-SE	B5.40	Design and joint geometry. See note 1 below.	63%
RC-E-10-B-SE	B5.40	Design and joint geometry. See note 1 below.	56%
RC-E-10-C-SE	B5.40	Design and joint geometry. See note 1 below.	71%
RC-E-10-D-SE	B5.40	Design and joint geometry. See note 1 below.	64%
RC-E-10-SP-SE	B5.40	Design and joint geometry. See note 1 below.	61%
Steam Generator			
1-RC-0001-01-03	B5.70	Geometry/Cast Stainless Steel elbows. See note 2 below.	32%
1-RC-0002-01-01	B5.70	Geometry/Cast Stainless Steel elbows. See note 2 below.	32%
1-RC-0004-01-03	B5.70	Geometry/Cast Stainless Steel elbows. See note 2 below.	33%
1-RC-0005-01-01	B5.70	Geometry/Cast Stainless Steel elbows. See note 2 below.	32%
1-RC-0007-01-03	B5.70	Geometry/Cast Stainless Steel elbows. See note 2 below.	31%
1-RC-0008-01-01	B5.70	Geometry/Cast Stainless Steel elbows. See note 2 below.	33%
1-RC-0010-01-03	B5.70	Geometry/Cast Stainless Steel elbows. See note 2 below.	32%
1-RC-0011-01-01	B5.70	Geometry/Cast Stainless Steel elbows. See note 2 below.	31%

Note 1: Examination can not be performed from the nozzle side due to configuration of the nozzle OD and the examination is limited from the safe end side due to the short axial scanning distance between the nozzle to safe end weld and the safe end to elbow weld.

Note 2. Weld is scanned from the nozzle side only due to the cast material on the elbow side. No parallel scans can be performed due the component configuration.

Seabrook Nuclear Power Station Unit No. 1

Relief From Inservice Inspection Requirements

IR-4, Revision 1

Components For Which Relief Is Requested:

Excess Letdown Heat Exchanger Shell Circumferential Weld (CS E-3 C)
Steam Generator Main Steam Outlet Nozzle Inner Radius (RC E-11A 16-IR)

ASME Code Class:

2

ASME Section XI Examination Category:

Table IWC-2500-1 Category C-A, Item No. C1.10 - Shell Circumferential Welds
Table IWC-2500-1 Category C-B, Item No. C2.22 – Nozzle Inside Radius Section

ASME Section XI Code Requirements:

ASME Section XI, 1983 Edition through the Summer 1983 Addenda, Table IWC-2500-1 Category C-A, Item No. C1.10 - Shell Circumferential Welds, which requires that circumferential shell welds at gross structural discontinuities be volumetrically examined. Note 1 identifies that the examinations include essentially 100% of the weld length.

ASME Section XI, 1983 Edition through the Summer 1983 Addenda, Table IWC-2500-1 Category C-B, Item No. C2.22 – Nozzle Inside Radius Section, which requires that the inner radius sections of all nozzles at terminal ends of piping runs be volumetrically examined.

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

Basis and Justification for the Granting of Relief:

Pursuant to 10CFR50.55a(g)(5)(iv), North Atlantic has determined that, due to design and geometric configuration, it is impractical to meet the Code required 100% coverage of Section XI or the alternative examination coverage requirements of Code Case N-460 on the two subject welds. Advances in examination technology have been applied to maximize examination coverage, therefore, this relief request updates the relief previously approved in Relief Request IR-4 for these welds. Only those welds selected for examination and where the reduction in coverage is greater than 10% are included in this revised relief request.

Excess Letdown Heat Exchanger Shell Circumferential Weld (CS E-3 C)

The examination requirement of "essentially 100%" of the weld length as specified in Table IWC-2500-1 Category C-A, Item No. C1.10 for weld CS E-3 C is impractical to meet. The examination coverage of this weld is limited to 43% due to vessel head to flange geometry and permanent physical obstruction. As depicted on drawing 1-NHY-650000 (Refer to Enclosure 2), the heat exchanger head is directly welded to a flange. The inlet and outlet connections are located on the head, but adjoin the weld. This creates a limitation such that the transducers can only scan from the head side of the weld and can only cover the area between the inlet and outlet connections.

Coverage for Excess Letdown heat exchanger weld CS E-3 C was conducted to the maximum extent practical with the design geometry and obstructions in place and is representative of the entire weld. This weld is also subject to VT-2 visual examination each inspection period as specified in Table IWC-2500-1, Examination Category C-H of the 1983 Edition through the Summer 1983 Addenda of ASME Section XI. The coverage obtained on this weld and the associated pressure testing performed provides reasonable assurance of continued structural integrity of this weld.

Steam Generator Main Steam Outlet Nozzle Inner Radius (RC E-11A 16-IR)

The volumetric examination requirement for nozzle inside radius sections of all nozzles at terminal ends of piping runs as specified in Table IWC-2500-1 Category C-B, Item No. C2.22 for weld RC E-11A 16-IR is impractical to meet. The steam generator main steam outlet nozzle is somewhat typical of a dropout nozzle, which is welded to the head. It is unlike a forged dropout, which has an inner radius transition. The main steam outlet nozzle contains a flow limiter device within the bore of the nozzle. This device makes a square transition to the nozzle making it ultrasonically impractical to examine and hence the 0% coverage assigned.

The steam generator main steam outlet nozzle weld (RC E-11A 16-NZ) receives a volumetric and surface examination as specified in Table IWC-2500-1, Examination Category C-B of the 1983 Edition through the Summer 1983 Addenda of ASME Section XI. Volumetric coverage of this weld is greater than 90%, which is considered full coverage in accordance with Code Case N-460. Surface examination coverage of this weld is 100%. In addition, a VT-2 examination associated with the system pressure test is performed on this weld each inspection period as specified in Table IWC-2500-1, Examination Category C-H of the 1983 Edition through the Summer 1983 Addenda of ASME Section XI. The full volumetric examination coverage, the 100% surface examination coverage, and visual examination associated with the system pressure test conducted on the nozzle weld provide reasonable assurance of continued structural integrity.

Alternative Examination:

No alternative examination for weld CS E-3 C is proposed.

No alternate examination of inner radius section RC E-11A 16-IR is proposed.

Applicability

This Relief Request is applicable to the completed First Ten-Year Interval Inservice Inspection Program.

Seabrook Nuclear Power Station Unit No. 1

Relief From Inservice Inspection Requirements

IR-12, Revision 0

Components For Which Relief Is Requested:

Four Pressurizer Welded Attachments and Supports

Component ID No:

RC E-10 A-LUG and associated support
RC E-10 B-LUG and associated support
RC E-10 C-LUG and associated support
RC E-10 D-LUG and associated support

ASME Code Class:

1

ASME Section XI Examination Category:

Table IWB-2500-1 Category B-H, Item No. B8.20
Table IWF-2500-1 Category F-A, Item No. F1.40

ASME Section XI Code Requirements:

ASME Section XI, 1983 Edition through the Summer 1983 Addenda, Table IWB-2500-1, Category B-H, Integral Attachments for Vessels, which requires a surface examination of essentially 100% of the weld length, and Table IWF-2500-1, Category F-A, Plate and Shell Type Supports, which requires a VT-3 visual examination of mechanical connections back to the building structure.

Basis and Justification for the Granting of Relief:

Pursuant to 10CRF50.55a(g)(5)(iv), relief is requested from performing the surface examination on the four Pressurizer welded attachments and the visual examination on the associated supports on the basis that the Code requirements are impractical to achieve. A 15″ thick concrete shield wall weighing approximately 85,000 pounds surrounds the Seabrook Pressurizer approximately three quarters of the way around. The clearance between the shield wall and the Pressurizer vessel is approximately 9½″. The north end of the cubicle has greater vessel to shield wall clearance, but is where safety valve and spray piping run. Ladders or platforms do not exist to make the examination area accessible nor can any ladders be placed due to restrictions by piping, conduit and other attachments.

The Pressurizer lugs are located on the Pressurizer at elevation 23′-6″. Potential access is gained by climbing a ladder on the outside of the shield wall and entering the cubicle at the top of the

Pressurizer at elevation 50'. Safety valve structural steel is used for footing as no platform exists in the cubicle. The North Atlantic Safety Department evaluated the lack of normal and emergency access/egress as an unsafe work environment.

In addition to area inaccessibility, each lug is braced on two sides by large support guides, which would require removal. Insulation is also wrapped around the lugs and support guides. Tools and rigging equipment to remove the support guides would be required to provide 360 degrees of access on each lug. Inaccessibility and removal of the support guides is impractical without a compensating increase in quality and safety.

These attachments are subject to VT-2 visual examination as part of the system leakage test on the Pressurizer vessel conducted each refueling outage as specified in Table IWB-2500-1, Examination Category B-P of the 1983 Edition through the Summer 1983 Addenda of ASME Section XI.

It is the North Atlantic position that the it is impractical to provide normal and emergency access/egress inside this highly restricted enclosure, and remove supports guides on these lugs to perform a surface examination without a compensating increase in quality and safety. It is the North Atlantic position that based on acceptable results of VT-2 visual examinations performed during system leakage tests, and no known or published adverse examination results within the nuclear industry on attachments in ASME Code Category B-H, Item B8.20, there is reasonable assurance of continued structural integrity of the subject attachments and an acceptable level of quality and safety is maintained.

Alternative Examination:

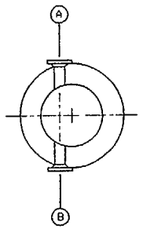
No alternative examination is proposed for these welded attachments and associated supports.

Applicability:

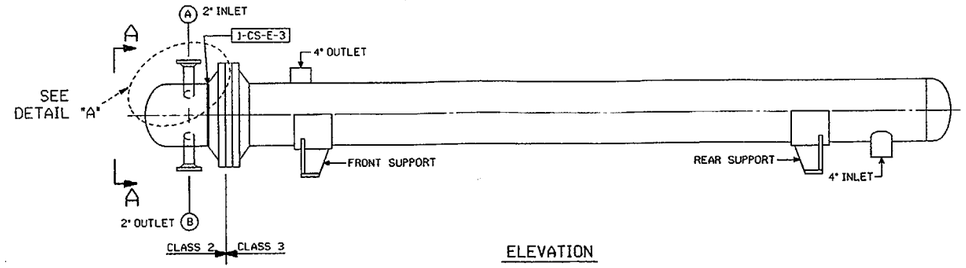
This Relief Request is applicable to the completed First Ten-Year Interval Inservice Inspection Program.

ENCLOSURE 2 TO NYN-01054

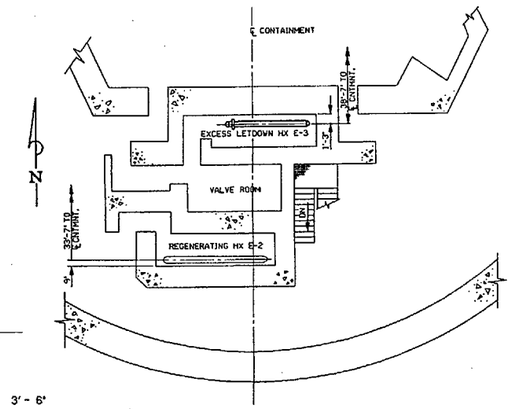
1-NHY-650000



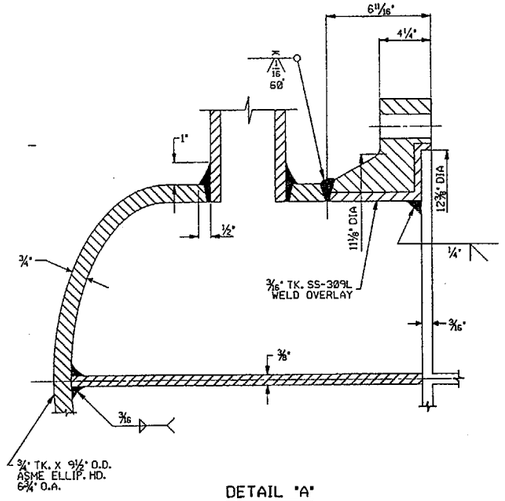
SECTION "A-A"



ELEVATION



CONTAINMENT LOCATION PLAN
EL. (-) 26'-0"



DETAIL "A"

NOTES:
1. DRAWING NOT TO SCALE
2. STUDS: 12- 1 5/8" X 8 UN X 14" LG. (CLASS 2A FIT)
3. NUTS: 1 5/8" SA-194-GR 2H (CLASS 2B FIT)
4. ATLAS JOB NO. 3343 DRAWINGS D-4651; C-4652; C-4653
5. WESTINGHOUSE P.O. NAH-CAZ-241663
6. WESTINGHOUSE SHOP ORDER 210

For Information Only

REV	DATE	DSGN	DRWN	CHKD	CE	LDE	DESCRIPTION
0	11/22/88	MPW	JM	RC	[illegible]	MR	ISSUED

New Hampshire Yankee

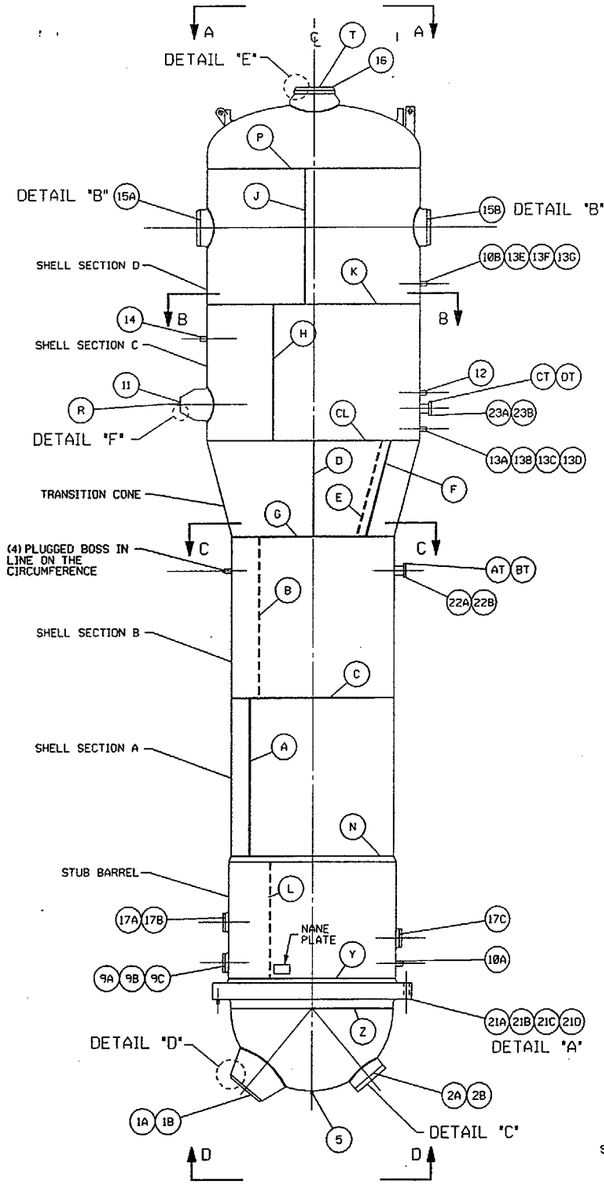
EXCESS LETDOWN HEAT EXCHANGER
1-CS-E-3
ISI EQUIPMENT WELDS

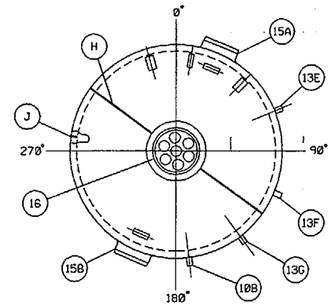
SEABROOK STATION

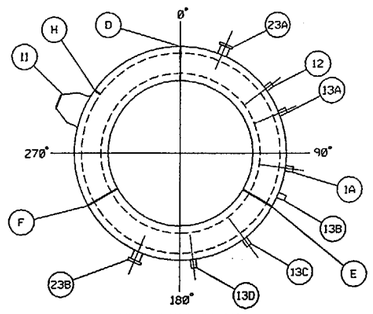
1-NHY-650000

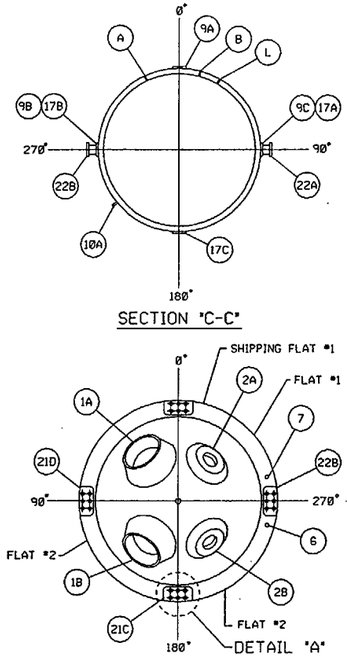
REF. DRAWING NO.	REV	TITLE
FP-50252	06	EXCESS LETDOWN HX.

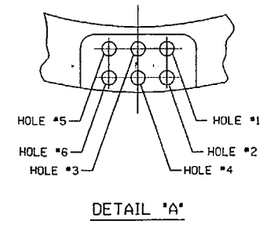
1-NHY-650011

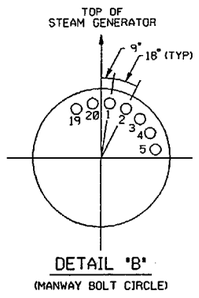


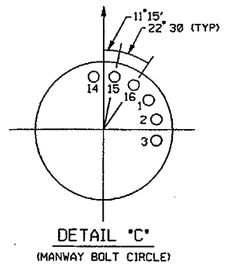


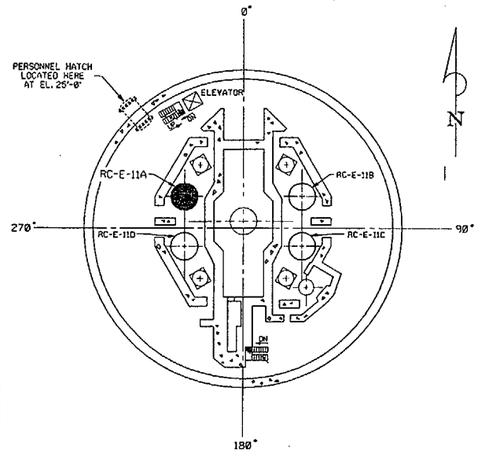


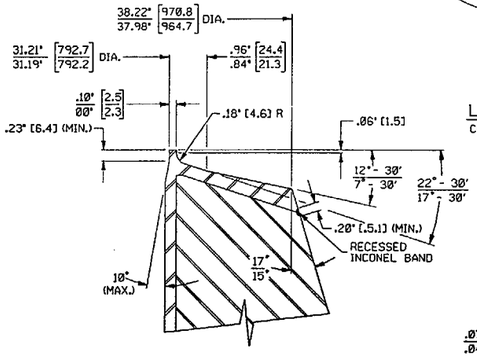


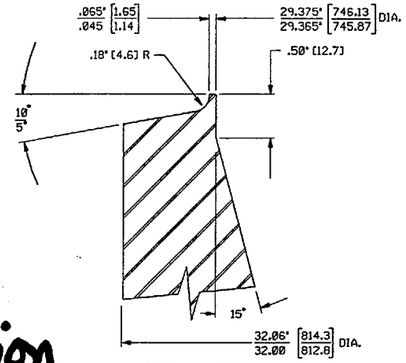












NOTE:
1. DRAWING NOT TO SCALE.

For Information Only

REV	DATE	DSGN	DRWN	CHKD	CE	LDE	DESCRIPTION
B	3/27/91	MPV	JH				ORIGINAL ISSUE

New Hampshire Yankee

SEABROOK STATION

ISI EQUIPMENT WELDS
STEAM GENERATOR
RC-E-11A

1-NHY-650011

FP-50218 REF. DRAWING NO. | 19 REV | OUTLINE-R.C. PUMP TITLE