September 3, 2002

Mr. Ted C. Feigenbaum
Executive Vice President and
Chief Nuclear Officer
North Atlantic Energy Service Corporation
c/o Mr. James M. Peschel
P.O. Box 300
Seabrook, NH 03874

SUBJECT: SEABROOK STATION, UNIT NO. 1, FIRST 10-YEAR INTERVAL INSERVICE INSPECTION (ISI) PROGRAM RELIEF REQUESTS IR-1 (REVISION 1), IR-2 (REVISION 1), IR-3 (REVISION 1), IR-4 (REVISION 1), AND IR-12 (REVISION 0) (TAC NO. MB2561)

Dear Mr. Feigenbaum:

By letter dated July 27, 2001, as supplemented by letters dated September 17, 2001, and June 20, 2002, North Atlantic Energy Service Corporation requested relief from certain requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code. The requests were made under the provisions of Section 50.55a(g)(5)(iv) of Title 10 of the *Code of Federal Regulations* (10 CFR).

The U.S. Nuclear Regulatory Commission (NRC) staff concludes that certain inservice inspection (ISI) examinations cannot be performed to the extent required by the Code at Seabrook Station. For requests IR-1(Revision 1), IR-2 (Revision 1), IR-3 (Revision 1), R-4 (Revision 1), and IR-12 (Revision 0), the staff concludes that the Code requirements are impractical and that the examinations that have been performed provide reasonable assurance of structural integrity and safety. The NRC staff finds the requests for relief acceptable. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the first 10-year ISI interval. The NRC staff has determined that the relief is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. The staff's safety evaluation is enclosed. This completes the staff's efforts on TAC No. MB2561.

Sincerely,

/RA by JBoska for/

Jacob I. Zimmerman, Acting Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosure: Safety Evaluation

cc w/encl: See next pages

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE FIRST 10-YEAR INTERVAL INSERVICE INSPECTION

NORTH ATLANTIC ENERGY SERVICE CORPORATION

SEABROOK STATION, UNIT NO. 1

DOCKET NUMBER 50-443

1.0 INTRODUCTION

By letter dated July 27, 2001, as supplemented by letters dated September 17, 2001, and June 20, 2002, North Atlantic Energy Service Corporation (North Atlantic/the licensee) submitted five relief requests associated with the first 10-year inservice inspection (ISI) interval at Seabrook Station, Unit No. 1 (Seabrook Station). The U.S. Nuclear Regulatory Commission (NRC) staff's has reviewed the information submitted by the licensee in support of the requests for relief. The basis for disposition is documented below.

2.0 BACKGROUND

ISI of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components is performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). It is stated in 10 CFR 50.55a(a)(3) that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the licensee demonstrates that (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. In accordance with 10 CFR 50.55a(b), the applicable version of the Code is the 1983 Edition through the 1983 Addenda for the first 10-year inservice inspection interval at Seabrook Station.

3.0 LICENSEE'S REQUESTS FOR RELIEF

3.1 Relief Request IR-1, Revision 1 (Part A)[1] Examination Category B-A, Items B1.21, and B1.40, Reactor Vessel Circumferential Head, and Head-to-Flange Welds

Code Requirement

ASME Section XI, 1983 Edition through the 1983 Addenda, Table IWB-2500-1, Category B-A, Pressure Retaining Welds in Reactor Vessel, Items B1.21 and B1.40 require volumetric examination of 100% of the weld. In addition, for Category B-A, Item B1.40, the Code requires a 100% surface examination of the head-to-flange weld.

Licensee's Basis for Relief

Pursuant to 10 CFR 50.55a(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 for the welds identified below:

Table 1

Weld Identification	Code Item Number	Limitation	Coverage Volumetric Examination
RC RPV 103-101	B 1.21	One-sided exam due to control rod drive (CRD) shield. Obstruction due to lifting lugs	50%
RC RPV 101-101	B 1.40	One-sided exam due to CRD shield. Obstruction due to lifting rings.	50%

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 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.

[1] For ease of evaluation, the NRC staff has divided Request for Relief IR-1 into Parts A and B.

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 Code 1983 Edition through the Summer 1983 Addenda of ASME Section XI.

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

Licensee's Alternate Examinations

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

Evaluation

The Code requires 100% volumetric examination of the subject Reactor Vessel Circumferential Head and Head-to-Flange welds. The limited coverage of weld RC RPV 103-101 is due to interference of the CRD shield that limits examination to one side of the weld and the reactor vessel head lifting lugs cover the subject weld. Weld RC RPV 101-101 has limited coverage due to the close proximity of the weld to the reactor vessel head flange. The location of the weld allows for only a one-sided ultrasonic (UT) examination. For weld RC RPV 101-101 the licensee completed the Code-required 100% surface examination.

The identified limitations make the 100% volumetric examination impractical. To gain access for examination, the subject Reactor Vessel Circumferential Head and Head-to-Flange Welds would require design modifications. Imposition of the Code requirement would create an undue burden on the licensee.

The licensee has examined a significant portion of the subject welds, obtaining 50% weld coverage for each of the subject welds. In addition, the licensee obtained 100% coverage of the Code-required surface exam on weld RC RPV 101-101. The welds are subject to a Code-required VT-2 visual examination conducted during the system leakage test each refueling outage.

Based on the examinations that have been performed, the Code-required VT-2 visual examination conducted during the system leakage test each refueling outage, and examinations performed on similar welds, the NRC staff finds that reasonable assurance of structural integrity of the subject components has been provided. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the first 10-year ISI interval at Seabrook Station.

3.2 Relief Request IR-1, Revision 1 (Part B)[2] Examination Category B-D, Item 3.90, Reactor Vessel Nozzle-to-Vessel Welds

[2] For ease of evaluation, the NRC staff has divided Request for Relief IR-1 into Parts A and B.

Code Requirement

ASME Section XI, 1983 Edition through the Summer 1983 Addenda, Table IWB-2500-1, Category B-D, Item No. B3.90 Full Penetration Welded Nozzles in Vessels, requires 100% volumetric examination of all nozzles.

Licensee's Basis for Relief

Pursuant to 10 CFR 50.55a(g)(5)(iii) the licensee 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 for the welds identified in Table 2 below:

Table 2

Weld Identification	Code Item Number	Limitation	Coverage Volumetric Examination
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%

As required by ASME Section XI, Table IWB-2500-1, Category B-D, these welds received a volumetric examination. The four subject nozzle welds 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 2 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 licensee's position that previous acceptable results of volumetric examinations of coverage achieved, surface examination, visual examination, and pressure test performed each

refueling outage provides reasonable assurance of continued structural integrity of these welds and maintains an acceptable level of quality and safety.

Licensee's Alternate Examinations

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

Evaluation

The Code requires 100% volumetric examination of the subject Reactor Vessel Nozzle-to-Vessel Welds. The licensee's drawings 1-NHY-650007 and 1-NHY-650010 show that the subject Nozzle-to-Vessel welds have limited examination coverage due to the geometric configuration of the nozzle knuckle region.

The geometric configuration makes the 100% volumetric examination impractical. To gain additional access for examination, the subject reactor vessel nozzle-to-vessel welds would require design modifications. Imposition of this requirement would create an undue burden on the licensee.

The licensee has examined a significant portion of these welds, obtaining 69% of the required coverage for each of the nozzle-to-vessel welds. In addition, the welds are subject to a Code-required VT-2 visual examination conducted during the system leakage test each refueling outage.

Based on the licensee's limited volumetric examinations and the Code-required VT-2 visual examination conducted during the system leakage test each refueling outage, reasonable assurance of structural integrity of the subject components has been provided. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the first ISI interval at Seabrook Station.

3.3 Relief Request IR-2, Revision 1 Examination Category B-B, Item Nos. B2.11, and B2.40 and Examination Category B-D, Item Nos. B3.110 and B3.130

Code Requirement

ASME Section XI, 1983 Edition through the Summer 1983 Addenda, Examination Category B-B, Pressure Retaining Welds in Vessels other than Reactor Vessels, and Examination Category B-D, Full Penetration Welded Nozzles in Vessels, require volumetric examination of essentially 100% of the subject welds.

Licensee's Basis for Relief

Pursuant to 10 CFR 50.55a(g)(5)(iv), the licensee has determined that, due to design and geometric configuration, it is impractical to meet the Code-required 100% examination coverage for the welds listed in Table 3 below:

Table 3

Weld Identification	Code Item Number	Limitation	Coverage Volumetric Examination
RC E-10 01 Pressurizer bottom head to shell weld	B 2.11	OD interference	80%
RC E-10 A-NZ Pressurizer Nozzle Weld	B 3.110	Nozzle to shell geometry and ID cladding	67%
RC E-10 B-NZ Pressurizer Nozzle Weld	B 3.110	Nozzle to shell geometry and ID cladding	55%
RC E-10 C-NZ Pressurizer Nozzle Weld	B 3.110	Nozzle to shell geometry and ID cladding	53%
RC E-10 D-NZ Pressurizer Nozzle Weld	B 3.110	Nozzle to shell geometry and ID cladding	77%
RC E-10 S-NZ Pressurizer Nozzle Weld	B 3.110	Nozzle to shell geometry and ID cladding	63%
RC E-10 SP-NZ Pressurizer Nozzle Weld	B 3.110	Nozzle to shell geometry and ID cladding	72%
RC E-11A SEAM-1 SG Tubesheet to Head Weld	B 2.40	Steam generator supports	78%
RC E-11A 2A-NZ SG Primary Nozzle Weld	B 3.130	Nozzle to shell geometry and ID cladding	84%
RC E-11A 2B-NZ SG Primary Nozzle Weld	B 3.130	Nozzle to shell geometry and ID cladding	84%

The pressurizer Bottom Head to Shell weld RC E-10 01 cannot 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 affect the pressurizer vessel. There are also five 1" diameter instrumentation nozzles located 6" above the weld centerline, which limits the examination coverage. These obstructions and the geometric configuration limited the weld examination volume to 80%.

The listed pressurizer nozzle welds have limited examination coverage due to the nozzle to shell geometry. The licensee's 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 the 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 individual limitations on examination volume. As depicted in Table 1, these limitations result in coverage from 53% to 77% of total examination volume.

The steam generator tubesheet to head weld (RC E-111A SEAM-1) could not be examined for essentially 100% of the weld length due to the design (physical obstruction from four steam generator supports). The licensee's Drawing 1-NYH-650011 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%.

Steam generator Primary Nozzle welds (RC E-11a 2A-NA and RC E-11A 2B-NZ) have limited examination 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 the two welds are 84% each.

In addition to the limited volumetric examinations, the subject welds are subject to VT-2 visual examinations 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 licensee's position that the acceptable results of the limited volumetric examinations obtained for the subject welds and the acceptable results of the visual examinations and pressure tests performed each refueling outage provide reasonable assurance of continued structural integrity of these welds, and maintain an acceptable level of quality and safety.

Licensee's Alternate Examinations

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

Evaluation

The Code requires 100% volumetric examination of the subject welds. The subject welds have limited coverage due to geometry, ID cladding and/or physical obstructions. The Code requirements are impractical to perform. To meet the Code requirements, design modifications would be necessary to provide access for examination. Imposition of the Code requirements would create an undue burden on the licensee.

The licensee has examined a significant portion of the subject welds, obtaining between 53% to 84% coverage. Based on the volumetric examinations performed and the Code-required VT-2 examination conducted during the system leakage test each refueling outage, reasonable assurance of structural integrity of the subject components has been provided. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the first ISI interval at Seabrook Station.

3.4 Relief Request IR-3, Revison 1 Examination Category B-F, Item Nos. B5.40, and B5.70 and Examination Category B-J, Item Nos, B9.11 and B9.31

Code Requirement

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

Licensee's Basis and Justification for Relief

Pursuant to 10 CFR 50.55a(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 Table 4 and 5. The licensee applied advances in examination technology to maximize the examination coverage. This revision to the relief request updates the previously approved relief request IR-3 (IR-3 was previously approved in a safety evaluation dated February 15, 1990). Only the welds selected for examination and where the reduction in coverage continues to be greater than 10% are included in this revised relief request.

Table 4
Piping Welds

Weld Identification	Code Item Number	Limitation	Coverage Volumetric Examination
LOOP 1 1-RC-0002-01-06	B9.11	Geometric configuration coupled with transducer size and non-parallel surfaces	7%
LOOP 1 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%
LOOP 2 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%
LOOP 3 1-RC-0009-01-03	B9.11	Weld configuration and scanning limited to one side due to cast stainless steel elbow	61%
LOOP 4 1-RC-0011-01-06	B9.11	Geometric configuration coupled with transducer size and non-parallel surfaces	7%
LOOP 4 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%
Branch Piping RC-0006-01-03B	B9.31	Weld configuration and one-sided scan only	66%
Branch Piping RC-0009-01-04B	B9.31	Weld configuration and one-sided scan only	66%
Branch Piping RC-0012-01-04B	B9.31	Weld configuration and one-sided scan only	66%

Table 5
Safe End Welds

Weld Identification	Code Item Number	Limitation	Coverage Volumetric Examination
Pressurizer RC-E-10-A-SE	B5.40	Design and Joint Geometry. See Note 1 below.	63%
Pressurizer RC-E-10-B-SE	B5.40	Design and Joint Geometry. See Note 1 below	56%
Pressurizer RC-E-10-C-SE	B5.40	Design and Joint Geometry. See Note 1 below	71%
Pressurizer RC-E-10-D-SE	B5.40	Design and Joint Geometry. See Note 1 below	64%
Pressurizer 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%
Steam Generator 1-RC-0002-01-01	B5.70	Geometry/Cast Stainless Steel elbows. See Note 2 below	32%
Steam Generator 1-RC-0004-01-03	B5.70	Geometry/Cast Stainless Steel elbows. See Note 2 below	33%
Steam Generator 1-RC-0005-01-01	B5.70	Geometry/Cast Stainless Steel elbows. See Note 2 below	32%
Steam Generator 1-RC-0007-01-03	B5.70	Geometry/Cast Stainless Steel elbows. See Note 2 below	31%
Steam Generator 1-RC-0008-01-01	B5.70	Geometry/Cast Stainless Steel elbows. See Note 2 below	33%

Steam Generator 1-RC-0010-01-03	B5.70	Geometry/Cast Stainless Steel elbows. See Note 2 below	32%
Steam Generator 1-RC-0011-01-01	B5.70	Geometry/Cast Stainless Steel elbows. See Note 2 below	31%

Note 1: Examination cannot 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: The welds are scanned from the nozzle side only due to the cast material on the elbow side. No parallel scans can be performed due to the component configuration.

Licensee's Alternative Examination

There are no alternate examinations proposed. The volumetric examinations have been completed to the maximum extent practical.

Evaluation

The volumetric examinations of the piping welds listed above are impractical to perform to the extent required by the Code due to the geometric configurations, permanent obstructions, and/or metallurgical properties.

The NRC staff determined that the licensee has volumetrically examined the subject welds to the extent practical. Based on the limited ultrasonic examinations performed on the subject welds, the required surface examinations on the welds, and the licensee's monitoring and tests for leakage, the NRC staff finds that reasonable assurance of structural integrity of the subject welds is provided. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the first ISI interval at Seabrook Station.

3.5 Relief Request IR-4, Revison 1, Examination Category C-A, Item No. C1.10 and Examination Category C-B, Item No. C2.22

Code Requirement

ASME Section XI, 1983 Edition through the Summer 1983 Addenda, Table IWC-2500-1 Category C-A, Item No. C1.10 - Shell Circumferential Welds, 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.

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

Licensee's Basis and Justification for Relief

Pursuant to 10 CFR 50.55a(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 on the two welds listed in Table 6.

Table 6

Weld Identification	Code Item Number	Limitation	Coverage Volumetric Examination
CS E-3 C	C1.10	Design geometry and physical obstructions	43%
RC E-11A 16-IR	C2.22	Flow limiter device inside the bore	0%

Evaluation

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

The Code requires 100% volumetric examination for the subject weld. The examination coverage of Weld CS E-3 C is limited to the vessel head due to flange geometry and permanent physical obstruction. As depicted in the licensee's drawing, 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. The Code volumetric coverage requirements are impractical for Weld CS E-3 C and to meet the Code coverage requirements, design modifications would be necessary to provide access for examination. Imposition of the Code requirements would create an undue burden on the licensee. This weld is also subject to VT-2 visual examination.

The licensee has volumetrically examined a significant portion, 43%, of Weld CS E-3 C. Based on the licensee's examination and the Code-required VT-2 visual examination conducted each inspection period, reasonable assurance of structural integrity of the subject component has been provided.

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

The Code requires volumetric examination for nozzle inside radius sections of all nozzles at terminal ends of piping runs. The steam generator main steam outlet nozzle (RC E-11A 16-IR) 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 as opposed to the nozzle design described in Figure IWC-2500-4. This device makes a square transition to the nozzle making it impractical to examine ultrasonically.

The Code requirements are impractical to examine the inner radius section of the steam generator main steam outlet nozzle (RC E-11A 16-IR). Design modifications would be necessary to provide access for examination. Imposition of the Code requirements would result in an undue burden on the licensee.

Based on the above evaluation, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the first ISI interval at Seabrook Station.

3.6 Relief Request IR-12, Revision 0 Examination Category B-H, Item No. B8.20 and Examination Category F-A, Item No. F1.40

Code Requirement

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

Licensee's Basis and Justification for Relief

Pursuant to 10 CFR 50.55a(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 9 ½". The north end of the cubicle has greater vessel to shield wall clearance, but is where the 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 52'. No platform exists in the cubicle and safety valve structural steel would be needed for footing. The licensee determined this lack of normal and emergency access/egress to be an unsafe work environment.

In addition to the inaccessibility of the area, each lug is braced on two sides by large support guides which would require removal. Insulation is 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.

The subject welded 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 licensee's position that it is impractical to provide normal and emergency access/egress inside the highly restricted enclosure, and to remove the insulation and support guides on the associated lugs. It is the licensee's position that based on the acceptable results of the VT-2 visual examinations performed during the 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.

Licensee's Proposed Alternative Examination (as stated)

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

Evaluation

The Code requires 100% surface examination for welds RC E-10 A-LUG, RC E-10 B-LUG, RC E-10 C-LUG, and RC E-10 D-LUG. In addition, the Code requires visual examination of the associated supports for the listed welds.

The NRC staff has reviewed the information and drawings provided by the licensee and finds that the required examinations are impractical. The pressurizer is surrounded by a 15" thick concrete shield wall for 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 it 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 there due to piping, conduit and other attachments.

In addition to area inaccessibility, each lug is braced on two sides by large support guides, which would require removal. Insulation is 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. The subject welded attachments are subject to VT-2 visual examination as part of the system leakage test on the pressurizer vessel which are conducted each refueling outage. The NRC staff finds that the conduct of these tests during the interval provides reasonable assurance of structural integrity of the welded attachments.

The associated supports for the subject welded attachments are inaccessible for the Code-required visual examination due to insulation and location. The licensee investigated the use of remote cameras and determined that it was not feasible to use them because of obstruction from ventilation ducting and height access. The subject supports provide limitations on the pressurizer vessel rotational movement. The licensee stated that there has been no indication that any unwanted/unexpected rotational movement of the pressurizer vessel has occurred. The licensee considers these supports to be inaccessible; and, as such, the supports should be exempt from examination as defined in IWF-1230, in later editions of the Code (1992 Edition). The Code of Record states that IWF-1230 is in the course of preparation. Therefore, the NRC staff finds that the subject supports are inaccessible and would not require examination of these supports as stated in later Code Editions (1992 Edition). To gain safe access to the supports would require redesign of the pressurizer and shield wall and would be a significant burden on the licensee.

Based on the VT-2 visual examination associated with the system pressure test performed on the subject welds each refueling outage and that no unwanted/unexpected rotational movement of the pressurizer vessel has occurred, the NRC staff finds reasonable assurance that structural integrity has been provided. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the first ISI interval at Seabrook Station.

4.0 CONCLUSION

The NRC staff evaluated the licensee's submittal and concluded that certain inservice examinations cannot be performed to the extent required by the Code at Seabrook Station. For requests IR-1 (Revision 1), IR-2 (Revision 1), IR-3 (Revision 1), R-4 (Revision 1), and IR-12 (Revision 0) discussed above, the NRC staff concluded that the Code requirements are impractical for the subject welds and/or attachments and that the examinations that have been performed provide reasonable assurance of structural integrity and safety. The NRC staff

found the licensee's requests for relief acceptable. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the first 10-year ISI interval. The NRC staff has determined that relief is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

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