

September 15, 2000

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 PROGRAM PLAN, REQUEST FOR RELIEF IR-11, REVISION 0,
(TAC NO. MA9353)

Dear Mr. Feigenbaum:

The Nuclear Regulatory Commission (NRC) staff has reviewed and evaluated the information provided by North Atlantic Energy Service Corporation (licensee), for the Seabrook Station in its letter dated June 29, 2000, which proposed its First 10-Year Interval Inservice Inspection Program Plan Request for Relief IR-11, Revision 0. Based on the information provided in the relief request on the impracticality of meeting the American Society of Mechanical Engineers Code (ASME Code) examination requirements for the subject weld, and the reasonable assurance of continued structural integrity provided by the examinations that were completed, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the first 10-year ISI interval. The staff has determined that this granting of 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 NRC staff's evaluation and conclusions are contained in the Enclosure. Contact the NRC Project Manager, Robert M. Pulsifer at (301) 415-3016 if you have any questions. This completes the staff's effort on TAC No. MA9353.

Sincerely,

/RA/

James W. Clifford, 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 page

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SEABROOK STATION, UNIT NO. 1

NORTH ATLANTIC ENERGY SERVICE CORPORATION

FIRST 10-YEAR INTERVAL INSERVICE INSPECTION

REQUEST FOR RELIEF IR-11, REVISION 0

DOCKET NO. 50-443

1.0 INTRODUCTION

Inservice inspection 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).

2.0 BACKGROUND

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. The code of record for the Seabrook Station, Unit No. 1 first 10-year ISI interval is the 1983 Edition through Summer 1983 Addenda of the ASME B&PV Code.

3.0 EVALUATION

The NRC staff has reviewed the information concerning ISI program Request for Relief IR-11, for Seabrook Station provided in North Atlantic Energy Service Corporation's (the licensee) letter dated June 29, 2000.

3.1 Request for Relief No. IR-11, Revision 0, Pressurizer Shell-to-Head Circumferential Weld

Code Requirement - Examination Category B-B, Item B2.11 requires essentially 100% volumetric examination of the Pressurizer Shell-to-Head Circumferential Weld as defined by Figure IWB-2500-1.

Licensee's Code Relief Request - In accordance with 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from the code-required volumetric examination of Pressurizer Shell-to-Head Circumferential Weld RC E-10 09.

3.1.1 Licensee's Basis for Requesting Relief (as stated)

Pursuant to 10 CRF(sic) 50.55a(g)(5)(iv), relief is requested from performing a volumetric examination on essentially 100% of the weld length on the basis that the Code requirement is impractical to achieve.

A 15" thick concrete shield wall weighing approximately 85,000 pounds surrounds the Seabrook Pressurizer. The clearance between the shield wall and the Pressurizer vessel is approximately 9 1/2". At the head-to-shell weld, this clearance is further reduced to approximately 3 1/2" by an extensive safety valve support structure. The limited clearance and support structure obstructions made manual volumetric examination extremely difficult and not repeatable as demonstrated on a prefabricated mock-up.

A state of the art automated ultrasonic system with a magnetic low profile scanner was utilized due to its ability to fit in the limited space, interrogate the Code required weld volume and its excellent repeatability. In spite of overcoming the highly restricted access, reinforcing plates and stiffeners on the Pressurizer shell prevented achievement of full coverage. Pressurizer head-to-shell weld examination coverage was limited to 83%. This examination was performed during refueling outage 05.

Additionally, the removal of welded attachments solely to achieve increased examination coverage results in an undue hardship with no compensating increase in quality and safety. The reinforcing plates and stiffeners are associated with seismic support of Pressurizer safety valves. Temporary support of this structure for access to remove the welded attachments is impractical. Also, repeated removal and re-welding of attachments has the potential to create negative metallurgical conditions to the shell of the Pressurizer vessel.

3.1.2 Licensee's Proposed Alternative Examination (as stated)

No additional examinations will be performed. The Pressurizer head-to-shell weld was volumetrically examined to the maximum extent possible in accordance with Code requirements. In addition a VT-2 visual examination associated with the system pressure test is also performed on this weld 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. The coverage achieved and the associated pressure testing performed ensures the integrity of the subject weld.

3.1.3 Evaluation

The code requires essentially 100% volumetric examination of the Pressurizer Shell-to-Head Circumferential Weld as defined by Figure IWB-2500-1. The staff determined that essentially 100% volumetric examination of the subject Pressurizer Shell-to-Head Circumferential Weld is impractical because of highly restricted access, reinforcing plates, and stiffeners on the pressurizer shell. To meet the code requirements, the subject component would require significant engineering redesign and modification to allow greater access to the subject weld. Imposition of the code requirements would result in a considerable burden on the licensee.

The licensee was able to obtain 83% of the required volumetric coverage. Based on the volume examined, and the licensee's performance of the code-required VT-2 visual examination associated with the system pressure test on this weld this refueling outage, the staff concludes that significant patterns of degradation, if present, would have been detected and reasonable assurance of the structural integrity of the Pressurizer Shell-to-Head Circumferential Weld has been provided.

Based on the impracticality of meeting the code examination requirements for the subject weld, the significant burden on the licensee if the staff imposed the code requirements on the licensee, and the reasonable assurance of continued structural integrity provided by the examinations that were completed, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the first 10-year ISI interval.

4.0 CONCLUSION

The staff has evaluated the licensee's submittal and concluded that certain inservice examinations cannot be performed to the extent required by the code at the Seabrook Station, Unit No. 1. For Request for Relief IR-11, Revision 0 as previously discussed, the staff concludes that the code requirements are impractical for the subject welds. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the first 10-year ISI interval. The staff has determined that this granting of 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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Date: September 15, 2000

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