

October 4, 2002

Mr. Harold W. Keiser
Chief Nuclear Officer & President
PSEG Nuclear LLC - X04
Post Office Box 236
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2 - RELIEF
FROM ASME CODE REQUIREMENTS RELATED TO THE SALEM INSERVICE
INSPECTION PROGRAMS, RELIEF REQUEST SC-RR-A02, (TAC NOS.
MB6086 AND MB6087)

Dear Mr. Keiser:

By letter dated July 8, 2002, PSEG Nuclear LLC (PSEG) submitted a request for relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the Code), Section XI, requirements for the maximum percentage of examinations credited for each period of the Salem Nuclear Generating Station, Unit Nos. 1 and 2 (Salem), inservice inspection (ISI) program. In the letter, PSEG requested use of alternative requirements provided by ASME Code Case N-598, "Alternative Requirements to Required Percentages of Examinations, Section XI, Division 1." Relief was requested for the third 10-year ISI interval for Salem Unit No. 1, and the second 10-year ISI interval for Salem Unit No. 2.

The U.S. Nuclear Regulatory Commission (NRC) staff has completed its review of the subject relief request. As documented in the enclosed Safety Evaluation (SE), the staff concludes that the proposed alternative will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the NRC staff authorizes the proposed alternative for the third 10-year ISI interval for Salem Unit No. 1, and the second 10-year ISI interval for Salem Unit No. 2.

Sincerely,

/RA/

James W. Andersen, Acting Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

Enclosure: Safety Evaluation

cc w/encl: See next page

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DATE	09/16/02	09/14/02	9/18/02	9/24/02	10/2/02

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PSEG Nuclear LLC

Salem Nuclear Generating Station,
Unit Nos. 1 and 2

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE MAXIMUM PERCENTAGES OF EXAMINATIONS

CREDITED FOR EACH INSERVICE INSPECTION PERIOD

IN ACCORDANCE WITH RELIEF REQUEST SC-RR-A02

PSEG NUCLEAR LLC

SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-272 AND 50-311

1.0 INTRODUCTION

By letter dated July 8, 2002, PSEG Nuclear LLC (PSEG) submitted a request for relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the Code), Section XI, requirements for the maximum percentage of examinations credited for each period of the Salem Nuclear Generating Station, Unit Nos. 1 and 2 (Salem) inservice inspection (ISI) program. In the letter, PSEG requested use of alternative requirements provided by ASME Code Case N-598, "Alternative Requirements to Required Percentages of Examinations, Section XI, Division 1."

Relief was requested for the third 10-year ISI interval for Salem Unit No. 1, and the second 10-year ISI interval for Salem Unit No. 2.

2.0 BACKGROUND

Regulatory Requirements

The ISI of the ASME Code Class 1, 2, and 3 components is to be performed in accordance with Section XI of the ASME Code and applicable edition and addenda as required by Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). Pursuant to 10 CFR 50.55a(a)(3), alternatives to the requirements of paragraph (g) may be used, when authorized by the U.S. Nuclear Regulatory Commission (NRC), Director of the Office of Nuclear Reactor Regulation, 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.

ENCLOSURE

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 components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein and subject to Commission approval.

3.0 RELIEF REQUEST

3.1 Component Description

ASME Section XI Class 1, 2, and 3 components, and their associated component supports

3.2 ASME Code Examination Requirement for which Relief is Requested

Salem, Unit No. 1

Paragraphs IWB-2412, IWC-2412, IWD-2412, and IWF-2410; and Tables IWB 2412-1, IWC 2412-1, IWD 2412-1 and IWF 2410-2 of Section XI of the ASME Code, 1995 Edition, including the 1996 Addenda, require that approximately one-third of the Code examinations be performed each inspection period, and that 100% of the examinations be completed each inspection interval.

Salem, Unit No. 2

Paragraphs IWB-2412, IWC-2412, IWD-2412, and IWF-2410; and Tables IWB 2412-1, IWC 2412-1, and IWD 2412-1 of Section XI of the ASME Code, 1986 Edition, without Addenda; and Table 2410-2 of ASME Code Case N-491 require that approximately one-third of the Code examinations be performed each inspection period, and that 100% of the examinations be completed each inspection interval.

3.3 PSEG's Proposed Alternative to ASME Code

PSEG proposes to credit the maximum number of inspections of its ASME Code, Section XI, Class 1, 2, and 3 components, and their associated component supports, in accordance with ASME Code Case N-598. The licensee requested relief for the third 10-year ISI interval for Salem Unit No. 1, and the second 10-year ISI interval for Salem Unit No. 2.

3.4 PSEG's Basis for the Proposed Alternative

In its letter dated July 8, 2002, PSEG provided its basis for requesting relief (as stated):

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative provides an acceptable level of quality and safety. PSEG Nuclear, LLC requests relief to incorporate the alternate examination requirements of ASME Code Case N-598, titled 'Alternative Requirements to Required Percentages of Examinations, Section XI Division 1', to determine the required percentage of examinations each inspection period for Class 1, 2, and 3 components and associated component supports at Salem, Units 1 & 2.

Although Code Case N-598 also addresses Class MC components, relief is not being requested for scheduling of Class MC components in this Request for Alternative.

The ASME Code tables referenced above were originally established such that approximately one third of the non-deferred examinations would be performed each period. Over the past 20 years, it has become increasingly more difficult to meet these percentages. The emergence of longer fuel cycles increases the likelihood that one of the periods will only have one refueling outage in it. In addition, efforts to shorten refueling outages have limited the amount of time available to perform examinations. These factors have made it difficult to complete the Code required percentages of examinations in the allotted time.

Code Case N-598 was developed to address this issue. It expands the range of examination completion percentages to allow examinations to be distributed more evenly between outages. This minimizes the need to schedule an excessive number of examinations during one outage just to meet the percentages required by ASME, Section XI, Tables IWB-2412-1, IWC-2412-1, IWD-2412-1, and IWF-2410-2(-2410-2). In addition, Code Case N-598 allows for a more uniform distribution between outages that is more conducive to performing quality examinations.

During the development of Code Case N-598, two additional factors were considered when evaluating the impact of the Code Case on plant safety. The first was that the existing tables allow up to 50 percent of the examinations to be performed in the second and third periods, but only 34 percent can be performed in the first period. Therefore, the Inspection Plan B schedule is biased towards delaying examinations until the end of the interval. The more flexible percentages stated in Code Case N-598 allow for more examinations to be performed earlier in the interval. This should improve safety because any problems, should they exist, would be detected earlier in the interval.

The second factor that was considered when developing Code Case N-598 was that some minimum amount of examinations should be required in each period. To address this consideration, the Code Case, including Note (1), is structured such that examinations will be required during all three periods. Due to the factors documented above, PSEG Nuclear LLC considers that the alternative criteria of Code Case N-598 provide an acceptable, or improved, level of quality and safety during the Third Ten-Year Inspection Interval.

4.0 EVALUATION

In lieu of meeting the requirements of examination percentages for each inservice inspection period listed in paragraphs IWB-2412, IWC-2412, IWD-2412, and IWF-2410; and Tables IWB 2412-1, IWC 2412-1, and IWD 2412-1 of Section XI of the ASME Code, and Table 2410-2 of Code Case N-491 (as applicable), the licensee proposed an alternative to use the percentages of examinations recommended in Code Case N-598 for all ASME Class 1, 2 and 3 components, and their associated supports. Code Case N-598 allows the following minimum percentages of examinations completed, and maximum percentages of examinations credited:

Inspection Interval	Inspection Period, Calendar Years of Plant Service Within the Interval	Minimum Examinations Completed, %	Maximum Examinations Credited, %
All	3	16	50
	7	50 (Note 1)	75
	10	100	100
Note 1: If the first period completion percentage for any examination category exceeds 34%, at least 16% of the required examinations shall be performed on the second period.			

The staff finds that the completion range of examination percentages based on ASME Code Case N-598 allows examinations to be distributed more evenly between refueling outages. The staff also finds that this uniform distribution between outages is more conducive to performing quality examinations. On this basis, the staff concludes that the licensee's proposed alternative criteria per Code Case N-598 provide reasonable assurance of the structural integrity of Salem's ASME Section XI Class 1, 2, and 3 components, and their associated component supports.

NRC Staff's Conclusion

Based on its review, the NRC staff finds that the proposed alternative described in PSEG's letter dated July 8, 2002, provides an acceptable level of quality and safety. Therefore, use of Code Case N-598 is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the third 10-year ISI interval for Salem Unit No. 1, and the second 10-year ISI interval for Salem Unit No. 2, or until such time as Code Case N-598 is approved for general use by reference in Regulatory Guide (RG) 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." At that time, if PSEG intends to continue to implement Code Case N-598, the licensee must follow the conditions, if any, specified in the RG.

Principal Contributor: R. Fretz

Date: October 4, 2002