



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO A REQUEST TO USE AN ALTERNATIVE TO ASME CODE SECTION XI

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

SALEM GENERATING STATION, UNIT NOS. 1 AND 2

HOPE CREEK NUCLEAR GENERATING STATION

DOCKET NUMBERS 50-272, 50-311, AND 50-354

1.0 INTRODUCTION

The Technical Specifications for the Salem Nuclear Generating Station, Unit Nos. 1 and 2, and the Hope Creek Generating Station state that the Inservice Inspection (ISI) and testing of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (ASME 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). In 10 CFR 50.55a(a)(3) it is stated that alternatives to the requirements of paragraph (g) may be used, when authorized by the Nuclear Regulatory Commission (NRC), if (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 preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection 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) on the date 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable edition of Section XI of the ASME Code for (a) Salem Unit 1 is the 1983 Edition, (b) Salem Unit 2 is the 1986 Edition, and (c) Hope Creek is the 1989 Edition. Salem Units 1 and 2 and Hope Creek are each currently in their second 10-year ISI interval. 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. Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code

Enclosure

is not practical for its facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements that are determined to be authorized by law, will not endanger life property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

In a letter dated September 8, 1999, the Public Service Electric and Gas Company (PSE&G, the licensee) requested approval, pursuant to 10 CFR 50.55a(a)(3)(i), to use the alternative requirements of ASME Section XI Code Case N-546, dated August 24, 1995, titled "Alternative Requirements for Qualification of VT-2 Examination Personnel, Section XI, Division 1." These alternative requirements were in lieu of the requirements of subsection IWA-2300, "Qualification of Nondestructive Examination Personnel," to ASME Section XI.

The NRC staff has reviewed and evaluated the licensee's request and supporting information to use Code Case N-546 as a proposed alternative to the Code requirements for Salem and Hope Creek.

2.0 DISCUSSION

Code Requirement: The ASME Code Section XI (1983, 1986, and 1989 Editions), Subsection IWA-2300, requires that all personnel performing VT-2 visual examinations be certified to comparable levels of competency as defined in ANSI N45.2.6. The VT-2 visual examination is conducted in accordance with ASME Code, Section XI, to locate evidence of leakage from pressure-retaining components, or abnormal leakage from components with or without leakage collection system, as required, during the conduct of pressure testing.

Licensee's Request: The licensee has requested approval to implement alternatives to the ASME Code requirements contained in Code Case N-546, which is not yet approved by the NRC by reference in Regulatory Guide (RG) 1.147. Further, the licensee indicated that Subsection IWA-2312 states, in part, that personnel performing visual examinations not addressed in Recommended Practice SNT-TC-1A shall be qualified and certified to comparable levels of qualification as defined in SNT-TC-1A and the employer's written practice.

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

ASME Code Case N-546 currently provides an alternative for the qualification requirements of VT-2 personnel:

- (a) At least 40 hours plant walkdown experience, such as that gained by licensed and nonlicensed operators, local leak rate personnel, system engineers, and inspection and nondestructive examination personnel.
- (b) At least 4 hours of training of Section XI requirements and plant specific procedures for VT-2 visual examination.
- (c) Vision test requirements of IWA-2321, 1985 Edition.

As stated [in the licensee's request], SNT-TC-1A applies to personnel whose specific jobs require appropriate knowledge of the technical principles underlying nondestructive testing (NDT) methods for which the personnel have responsibilities. VT-2 requires no special knowledge of technical principles underlying its performance. VT-2 involves simply the straight forward examination for leakage. No special skills or technical training are required in order to observe water dripping from a component or bubbles forming on a joint wetted with leak detection solution. As such, qualification in accordance with the provisions of the Code Case does not present any reduction in quality or safety.

Code Case N-546 allows those personnel most familiar with the walkdown of plant systems, such as licensed and nonlicensed operators to perform VT examinations without formal qualification and certification. These personnel typically have a sound working knowledge of plant components and piping layouts that makes them acceptable candidates for performing VT-2 visual examinations.

When performing system pressure tests in accordance with ASME Section XI, Operations personnel walk down the systems to meet the Technical Specification requirements and VT-2 examiners also walkdown the systems to meet the ASME Section XI requirements. The use of Code Case N-546 will allow the qualification of operators to perform walkdowns that fulfil the requirements of both ASME Section XI and the Technical Specifications. This will result in savings of manpower and radiation exposure at PSE&G.

Approval of this request would be in accordance with 10 CFR 50.55a(a)(3)(i), as compliance with Code Case N-546 will provide an essentially equivalent alternative to the IWA-2300 requirements. Approval would also provide relief from the administrative and financial burdens of certification that do not provide any compensating increase in the level of quality or safety.

Licensee's Proposed Alternative to Code Requirements: (as stated)

As an alternative to existing Section XI requirements, PSE&G requests the use of the provisions of Code Case N-546. In lieu of certifying VT-2 examiners to comparable levels of SNT-TC-1A, examiners will be qualified to the requirements specified in Code Case N-546.

Training and qualification of VT-2 personnel will be documented, and the records will be maintained for the life of the plant. The examinations will be performed using standard procedures to provide for consistent quality VT-2 visual examinations. An independent review and evaluation of the VT-2 visual examination results will be performed and documented on the examination records.

3.0 EVALUATION

The Code requires that VT-2 visual examination personnel be qualified to comparable levels of competency as defined in ANSI N45.2.6. The Code also requires that the examination personnel be qualified for near and far distance vision acuity.

The NRC staff considers the qualification requirements in Code Case N-546 to be comparable to those of the ASME Code, Section XI, paragraph IWA-2300, for VT-2 visual examination personnel. With regard to the selection of personnel to conduct the test, the Code Case states that licensed and nonlicensed operators, local leak rate personnel, system engineers, and inspection and nondestructive examination personnel are eligible due to their plant experience. Those personnel typically have a sound working knowledge of plant components and piping layouts, making them acceptable candidates for performing VT-2 visual examinations. Furthermore, the licensee follows plant-specific procedures to obtain consistent VT-2 visual examination results. The Code Case also requires a vision test for examination personnel similar to that of the Code.

4.0 CONCLUSION

On the basis of its review of Code Case N-546, the NRC staff has concluded that the alternatives to the Code qualification requirements for examination personnel will provide an acceptable level of quality and safety in that it will provide adequate leakage detection. Therefore, the licensee's request to implement alternatives contained in Code Case N-546 for Salem Units 1 and 2 and Hope Creek is authorized pursuant to 10 CFR 50.55a(a)(3)(i), until such time as the Code Case is approved by reference in RG 1.147. At that time, if the licensee intends to continue to implement this Code Case, the licensee must follow all provisions in Code Case N-546 with the limitations issued in RG 1.147, if any.

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