



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
OF THE SECOND TEN-YEAR INTERVAL INSERVICE INSPECTION
RELIEF REQUEST NO. SR-15
FOR
VIRGINIA ELECTRIC POWER COMPANY
SURRY POWER STATION, UNIT 2
DOCKET NO.: 50-281

1.0 INTRODUCTION

Technical Specification 4.3 for the Surry Power Station, Unit 2, states that inservice inspection of 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 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). 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the 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 difficulties 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 second 10-year interval 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 inspection interval, subject to the limitations and modifications listed therein.

The applicable edition of Section XI of the ASME Code for Surry Power Station, Unit 2, Second Ten-Year Inservice Inspection (ISI) Interval, is the 1980 Edition through Winter 1980 Addenda. 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.

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 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, the Commission may grant relief and may impose alternative requirements that are determined to be authorized by law, will not endanger life or 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 on the facility.

In a letter dated May 27, 1992, Virginia Electric and Power Company (licensee) submitted Request for Relief No. SR-15 requesting relief from surface examinations of integral attachments on Residual Heat Removal Heat Exchangers. The NRC staff has evaluated Request for Relief No. SR-15 in the sections that follow.

2.0 EVALUATION

The information provided by the licensee in support of the request for relief has been evaluated and documented below.

Request for Relief No. SR-15 - Surface Examinations of Integral Attachments on Residual Heat Removal Heat Exchangers.

Code Requirement: ASME Boiler and Pressure Vessel Code Section XI, 1980 Edition (with Addenda through Winter 1980) Table IWC-2500-1, Category C-C, Item C3.10, requires a surface examination on 100 percent of the required areas of each integral attachment. In the case of multiple vessels of similar design and service, the required examinations may be conducted on one vessel and where multiple vessels are provided with a number of similar attachments, the examination of the attachments may be distributed among the vessels.

Licensee's Code Relief Request: Relief is requested from performing the Code-required surface examinations on the integrally welded attachments for the Residual Heat Removal Heat Exchanger.

Licensee's Basis for Requesting Relief: The licensee stated that the heat exchangers and the integral attachments were designed and constructed to ASME Section VIII, 1965 Edition, Winter 1966 Addendum. This edition of Section VIII only required a visual examination of the integral attachments. The acceptance criteria as stated in paragraph UW-38, "Repair of Weld Defects," required that visible defects, such as cracks, pinholes, incomplete fusion, and defects detected by hydrostatic test be removed. These integral attachments never received, nor were they required to receive, a surface examination under Section VIII of the construction code. Additionally, the initial preservice examinations at Surry were limited to Class 1 components, since Class 2 and 3 components had not yet been included in Section XI of the ASME Code. As such, the welded areas of these integral attachments were not prepared for examination and preservice surface examinations were not conducted on the welds. The actual surface condition of the integral attachments is indicative of only a visual type examination during plant construction.

Attempts to examine these attachments as part of the present inservice inspection program, which requires a surface examination, have resulted in indications indicative of a generally rough surface condition. The latest surface examinations of the integral attachments were considered unacceptable due to inability to perform a surface examination on the rough surface condition using today's standards.

An evaluation of the man-hours and dose requirements necessary to properly prepare these welds for surface examination, which will include both grinding and welding of the integral attachments has been completed. It was estimated that an expenditure of 11.74 man-rem would be necessary to properly prepare these attachments for a Section XI preservice examination. This dose expenditure and additional outage maintenance is impractical considering that the original Section VIII Construction Code accepted the surface condition visually.

Licensee's Proposed Alternative Examination: The licensee proposed that the integral attachments shall be visually inspected (VT-3) for cracking or other conditions described as unacceptable in paragraph UW-38, "Repair of Welded Defects" of the original Section VIII Construction Code.

Staff Evaluation: The Code requires that a surface examination be performed on 100 percent of the required areas of each integral attachment for the Residual Heat Removal Heat Exchangers. The staff determined that the licensee's compliance with the Code requirement to perform surface examinations on the Residual Heat Removal Heat Exchangers integral attachments would result in a hardship or unusual difficulties and do not necessarily increase the level of quality and safety for Surry Power Station, Unit 2. The hardship or unusual difficulty is the radiation dose expenditure of 11.74 man-rem as a result of preparing the attachments for the Code surface examination.

The licensee proposed as an alternative to the Code requirement to examine the integral attachments visually (VT-3) for cracking or other conditions described as unacceptable in paragraph UW-38, "Repair of Welded Defects" of the original Section VIII Construction Code. The staff determined that the alternative examination would provide reasonable assurance of the structural integrity of the pressure boundary of the Residual Heat Removal Heat Exchangers.

3.0 CONCLUSION

Paragraph 10 CFR 50.55a(g)(4) requires that components (including supports) that are classified as ASME Code Class 1, 2, and 3 meet the requirements, except the design and access provisions and preservice requirements, set forth in applicable editions of ASME Section XI to the extent practical within the limitation of design, geometry, and materials of construction of the components. Pursuant to 10 CFR 50.55a(3)(ii), the staff has concluded that certain requirements of the Code are a hardship or unusually difficult to perform, and do not necessarily increase the level of quality and safety for Surry Power Station, Unit 2. Therefore, relief may be granted for the issues described in Request for Relief No. SR-15. This relief is being granted giving due consideration to the hardship upon the licensee that could result

giving due consideration to the hardship upon the licensee that could result if the requirements were imposed on the facility. Such relief and alternative examinations are authorized by law, will not endanger life, property, or the common defense and security, and is otherwise in the public interest.

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