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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION OF THE FIRST 10-YEAR INTERVAL INSERVICE INSPECTION REQUESTS FOR RELIEF 8/9/90 AND 7/17/90 FOR TOLEDO EDISON COMPANY DAVIS-BESSE NUCLEAR POWER STATION UNIT 1 DOCKET NO. 50-346

1.0 INTRODUCTION

Technical Specifications for Davis-Besse Nuclear Power Station, Unit 1, state that the surveillance requirements for Inservice Inspection 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 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 if (1) the proposed alternatives would provide an acceptable level of quality and safety, or (2) 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 first 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 date of issuance of the operating license, 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.

Pursuant to 10 CFR 50.55a(g)(5), if a 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, 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 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.

In a letter dated July 17, 1990, the licensee, Toledo Edison Company, submitted Request for Relief No. 7/17/90, asking for relief from the hydrostatic testing requirements of IWA-5212 and IWA-5213. In a letter dated August 9, 1990, the licensee submitted Request for Relief No. 8/9/90, asking for relief from performing the Code-required VT-2 visual examination of Class 1 piping enclosed by the Decay Heat Valve (DHV) pit.

2.0 EVALUATION

With technical assistance from its Contractor, the Idaho National Engineering Laboratory (INEL), the staff has evaluated the information provided by the licensee in support of Request for Relief 8/9/90 and 7/17/90, as follows:

Request for Relief No. 8/9/90, Examination Category B-P, Items B15.50 and B15.51, VT-2 Visual Examination of Class 1 Piping during System Pressure Tests

Code Requirement: Subsection IWB, Table IWB-2500-1, Examination Category B-P, Items B15.50 and B15.51, require a VT-2 visual examination to be performed during system leakage and hydrostatic tests.

Licensee's Code Relief Request: Relief is requested from the Code-required VT-2 visual examination during system leakage and system hydrostatic testing on the portions of piping enclosed by the DHV pit.

Licensee's Basis for Requesting Relief: The licensee states that the piping contained in the DHV pit is not isolable from the reactor coolant system (RCS). The isolable portion of the Class 1 piping in the DHV pit is subjected to a leakage or hydrostatic test every refueling. Welds in the affected piping are subject to periodic volumetric and surface examinations in accordance with the ISI program. Two piping welds in the affected area have been subjected to volumetric and/or surface examinations as required by the ISI program and no indications were detected.

Davis-Besse Technical Specification (TS) 3/4.5.2, "Emergency Core Cooling Systems," requires that the DHV pit serve as a water-tight enclosure for valves DH11 and DH12 that ensures that the motor operators on valves DH11 and DH12 will not be flooded for at least 7 days following a LOCA during Modes 1, 2, and 3. The RCS leakage and hydrostatic tests must be performed in at least Mode 3, since TS 3/4.4.2, "Safety Valves," in effect restricts RCS pressure to less than the decay heat removal system relief valve setpoint of 330 psig in Modes 4 and 5. Removal of the valve pit cover in Modes 1, 2, and 3 would invoke the TS 3.5.2 72-hour action statement. Removal of the valve pit cover, inspection, and restoration of the valve pit cover, and completion of testing required by TS 4.5.2.f, cannot be reasonably accomplished within the 72-hour limit permitted by the action statement. The cure time of the RTV sealant used on the cover is a minimum of 24 hours. In addition, a vacuum leakage rate test is required after the seal is established.

The valve port also has an inspection port. However, this inspection port is at the opposite end of the pit from the affected piping. The inspection port only allows for a view of the floor directly below the port, and not the floor below the subject piping. The valve pit has a computer alarm for the water level in the pit, which would provide control room indication of any major leakage during operation. The extent of visual examination permitted by the inspection port, coupled with the computer level alarm and other ISI program requirements, provides reasonable assurance of the structural integrity of the section of piping for which relief is requested.

Licensee's Proposed Alternative Examination: None. A visual examination of the floor of the DHV pit for evidence of leakage by viewing through the DHV pit inspection port will be performed during every system leakage and hydrostatic test.

Staff Evaluation: The piping contained within the DHV pit is not isolable from the RCS. Therefore, the Code-required VT-2 visual examination must be performed during the hydrostatic/leakage tests for the RCS. The hydrostatic/leakage tests for the RCS must be performed in at least Mode 3. Performance of the Code-required visual examination on the subject piping during the hydrostatic and leakage tests requires removal of the DHV pit cover to gain unrestricted access for the examination. Davis-Besse Technical Specifications require that the DHV pit serve as a water-tight enclosure for valves within the pit and invokes a 72-hour action statement if the cover is removed during Modes 1, 2, or 3. The action statement requires that removal of the cover, inspection of the piping, and replacement, sealing, and testing of the cover seal, be completed within 72 hours. Performing all the required tasks cannot be reasonably accomplished within the 72-hour period, therefore, the Code required visual examination is impractical for the piping within the DHV pit.

The valve pit does have an inspection port that is not positioned near the subject pipe, but does provide a clear view to the floor of the pit beneath the port, so that any significant leakage within the pit can be detected. In addition, the pit has a computer alarm for the water level in the pit that would provide the control room an indication of any major leakage that occurred during operation.

The portions of Class 1 piping in the DHV pit that are isolable from the RCS are subjected to a leakage or hydrostatic test every refueling. In addition, two welds in the affected piping also receive volumetric and surface examinations as required by the ISI program, and no indications have been detected.

Based on the above, it is concluded that the visual examination of the pit floor through the inspection port, plus the computer alarm and the ISI examinations, provide reasonable assurance of the continued structural integrity of the subject piping. Therefore, pursuant to 10 CFR 50.-55a(g)(6)(i), relief is granted as requested.

Request for Relief No. 7/17/90, System Pressure Testing Requirements of IWA-5212 and IWA-5213

Code Requirement: Subparagraph IWA-5212(a) requires test pressures and temperatures for hydrostatic and leakage testing per paragraphs IWB-5000, IWC-5000 and IWD-5000. Subparagraph IWA-5213(d) "system hydrostatic tests," requires a 4-hour hold time at the required temperature and pressure for insulated systems and a 10-minute hold time for noninsulated systems.

Licensee's Code Relief Request: Relief is requested from the minimum hydrostatic test pressure requirements of IWA-5212 and the 4-hour hold time requirements of IWA-5213 for ASME Code, Class 2 and 3 systems for the first 10-year ISI interval, which ended on September 21, 1990.

Licensee's Basis for Requesting Relief: During the first 10-year interval, the Instrumented Inspection Technique (IIT) described in HAFA Topical Report 135 (P-A) was used as an NRC approved alternative to the hydrostatic test requirements of IWA-5000. This method included a VT-2 visual examination, but at lower pressures and shorter hold times. IIT also involves the use of Leakage Monitoring Devices and Acoustic Emission sensors to augment the visual examination. In letters dated November 13, 1985 and September 28, 1988, the NRC granted approval for use of the IIT method at Davis-Besse Nuclear Power Station. A total of 31 IIT tests were conducted under these approvals.

In a letter dated June 4, 1990, the NRC staff rescinded approval of the IIT Topical Report and reaffirmed its position that testing done in accordance with this method was invalid. In response to NRC concerns on the IIT method, conventional hydrostatic tests that satisfy the first 10-year interval requirements have been completed on 12 of the 31 IIT tests. The first 10-year interval ended on September 21, 1990; consequently, it was impractical to complete the remaining hydrostatic tests during the first interval.

Licensee's Proposed Alternative Examination: None. The Code-required hydrostatic tests will be conducted on the affected systems during the second and subsequent 10-year ISI intervals in accordance with the effective ASME Code editions in force at the time.

Staff Evaluation: Based on the NRC approval, the licensee utilized the IIT method in lieu of the conventional hydrostatic tests in 31 instances. The IIT method was a valid alternative during the majority of the first 10-year interval. Four months prior to the end of the first 10-year interval, approval of the HAFA Topical Report was rescinded and the NRC reaffirmed its position that the IIT method was not an acceptable alternative to the Code-required hydrostatic tests. In response to this change of policy, code hydrostatic tests were performed for 12 of the 31 IIT tests before the interval ended. The licensee has proposed performing the remaining Code-required hydrostatic tests during the first period of the second 10-year interval.

Approval of the IIT method was rescinded 4 months prior to the end of the first interval and the licensee did make a serious effort to meet the Code requirements. Nineteen of 32 tests were performed at IIT temperatures, pressures, and hold times, rather than at those required in IWA-5212 and IWA-5213. Performance of Code-required hydrostatic tests during the first part of the next inspection interval on the 19 remaining cases in which the IIT was used will provide additional assurance of the structural and leaktight integrity of the systems. Pursuant to 10 CFR 50.55a(a)(3)(i), the staff concludes that the licensee's proposed rescheduling of the hydrostatic tests will provide an acceptable level of quality and safety and that the rescheduling of the tests is an acceptable alternative.

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 design and access provisions and preservice requirements, set forth in applicable editions of ASME Section XI to the extent practical within limitations of design, geometry, and materials of construction of the components.

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee determined that conformance with certain Code requirements is impractical for its facility and submitted supporting information. The staff has reviewed the licensee's submittals and has concluded that relief can be granted as requested. Pursuant to 10 CFR 50.55a(g)(6)(i), the staff concludes that the requirements of the Code are impractical and relief may be granted for Request for Relief No. 8/9/90. Pursuant to 10 CFR 50.55a(a)(3)(i), the staff concludes that the licensee's proposed plan for scheduling the Code-required hydrostatic tests will provide an acceptable level of quality and safety. Such relief and approved alternative examinations are authorized by law and will not endanger life, property, or the common defense and security, and is otherwise in the public interest.

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