



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

November 12, 2014

MEMORANDUM TO: File

FROM: Andrea E. George, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

A handwritten signature in black ink, appearing to read "AEG", written over the typed name of Andrea E. George.

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 2 – SUMMARY OF TELEPHONE
CONFERENCE RE: VERBAL AUTHORIZATION FOR RELIEF
REQUEST ANO2-ISI-017 (TAC NO. MF5107)

This memorandum summarizes the telephone discussion on November 1, 2014, between the U.S. Nuclear Regulatory Commission (NRC) staff and Entergy Operations, Inc. (Entergy, the licensee). The discussion related to the licensee's emergent Relief Request ANO2-ISI-017 for Arkansas Nuclear One (ANO), Unit 2. Participants in the discussion included Messrs. Bryan Daiber, Darrell Perkins, John Hathcote, Scott Thessing, David Bice, and Bob Clark, and Ms. Stephanie Pyle from ANO; Dr. David Alley and John Tsao from the NRC's Office of Nuclear Reactor Regulation, Division of Engineering, Component Performance, Non-Destructive Evaluation, and Testing Branch (NRR/DE/EPNB); Mr. Ryan Lantz, Chief, from the NRC's Region IV, Division of Reactor Projects Branch E; and Mr. Michael Markley, Chief, and Ms. Andrea George, Project Manager, from NRR's Division of Operating Reactor Licensing, Plant Licensing Branch IV-1 (NRR/DORL/LPLIV-1).

On October 20, 2014, the licensee discovered a small pinhole leak in American Society of Mechanical Engineers (ASME) Code Class 3 piping at a dissimilar metal weld between a 6-inch stainless steel elbow and a carbon steel sweep-o-let. These components are located in the suction piping of the "B" emergency feedwater pump which is part of the plant's service water piping system. At the time, the leak rate from the pinhole leak was approximately 32 drops per hour.

By letter dated October 31, 2014, and as supplemented by letter dated November 1, 2014 (ADAMS Accession Nos. ML14309A188 and ML14309A186, respectively), the licensee requested relief from the requirements of the ASME Boiler and Pressure Vessel Code (ASME Code), Section XI, IWD-3120(b), at ANO, Unit 2. Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(ii), the licensee submitted Relief Request ANO2-ISI-017 to propose an alternative flaw evaluation to that of ASME Code Case N-513-3, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1," to disposition a pinhole leak in lieu of performing a repair of the service water system piping.

The licensee derived an allowable axial through wall flaw size of 5.8 inches and allowable circumferential through wall flaw size of 2.7 inches. Additionally, the licensee established a maximum leak rate limit for the pinhole leak of 5 gallons per minute. The licensee stated that

this leak rate is sufficiently low so as to not to challenge the structural integrity of the piping, affect the required safety function of the pipe, or create issues associated with water spray or flooding. The licensee also stated that it will perform required augmented inspections per Code Case N-513-3 to monitor the leak rate, potential flaw growth and extent of condition. The NRC staff concludes that there is a sufficient margin in terms of flaw size and leak rate with respect to the allowable limits. Based on independent calculations, the NRC staff concludes that the subject pipe has sufficient fracture toughness to so as not to challenge the structural integrity of the piping.

The NRC concludes that the licensee has demonstrated that Relief Request ANO2-ISI-017 will provide reasonable assurance that the structural integrity of the subject service water piping and its intended safety function will be maintained. The NRC staff concludes that complying with IWD-3120(d) of the ASME Code, Section XI, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(ii). Therefore, on November 1, 2014, the NRC authorized the use of Relief Request ANO2-ISI-017 at ANO, Unit 2, until the end of the fall 2015 refueling outage, the time at which the pinhole exceeds the allowable flaw sizes, or the time at which the leak rate exceeds the allowable leak rate, whichever event occurs first.

All other requirements in ASME Code, Section XI, for which relief was not specifically requested and approved in this relief request remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

This verbal authorization does not preclude the NRC staff from asking additional clarification questions regarding the Relief Request while preparing subsequent written safety evaluation.

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this leak rate is sufficiently low so as to not to challenge the structural integrity of the piping, affect the required safety function of the pipe, or create issues associated with water spray or flooding. The licensee also stated that it will perform required augmented inspections per Code Case N-513-3 to monitor the leak rate, potential flaw growth and extent of condition. The NRC staff concludes that there is a sufficient margin in terms of flaw size and leak rate with respect to the allowable limits. Based on independent calculations, the NRC staff concludes that the subject pipe has sufficient fracture toughness to so as not to challenge the structural integrity of the piping.

The NRC concludes that the licensee has demonstrated that Relief Request ANO2-ISI-017 will provide reasonable assurance that the structural integrity of the subject service water piping and its intended safety function will be maintained. The NRC staff concludes that complying with IWD-3120(d) of the ASME Code, Section XI, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(ii). Therefore, on November 1, 2014, the NRC authorized the use of Relief Request ANO2-ISI-017 at ANO, Unit 2, until the end of the fall 2015 refueling outage, the time at which the pinhole exceeds the allowable flaw sizes, or the time at which the leak rate exceeds the allowable leak rate, whichever event occurs first.

All other requirements in ASME Code, Section XI, for which relief was not specifically requested and approved in this relief request remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

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