December 12, 2008

MEMORANDUM TO: Thomas H. Boyce, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing

FROM: Eva A. Brown, Senior Project Manager ***/RA/***
Plant Licensing Branch II-2
Division of Operating Reactor Licensing

SUBJECT: BROWNS FERRY NUCLEAR PLANT UNIT 1- VERBAL RELIEFS RELATED TO INSTRUMENT LINE WELD OVERLAY (TAC NOS. MD0155 AND MD0172)(1-ISI-21 AND 1-ISI-22)

On November 24, 2008, the Tennessee Valley Authority (TVA, the licensee) communicated to the Division of Operating Reactor Licensing (DORL) the need to repair a through-wall leak on Class 1 piping for Browns Ferry Unit 1. TVA indicated that the leak was located in the safe-end segment of nozzle N11B for a common reactor vessel wide range level instrumentation sensing line, and was identified during the reactor pressure vessel inservice pressure test.

After examinations to characterize the identified flaw, the licensee indicated its intent to use American Society of Mechanical Engineers Pressure and Boiler Vessel (ASME) Code Section XI, Code Case 504-3, *Alternative Rules for Repair of Class 1, 2, and 3 Austenitic Stainless Steel Piping, Section XI, Division 1,* dated August 4, 2004. The Code Case was conditionally approved by the Nuclear Regulatory Commission (NRC) in Regulatory Guide 1.47, *Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1*. The approval required that the provisions of Section XI, Nonmandatory Appendix Q, *Weld Overlay Repair of Class 1, 2, and 3 Austenitic Stainless Steel Piping Weldments*, must also be met.

The NRC staff held several conference calls from November 24-26, 2008. On November 25, 2008, the licensee indicated that a relief request (1-ISI-22) would be submitted requesting the use of a system leak test in accordance with IWA 5000, *System Pressure Tests*, in lieu of the hydrostatic test required by the Code Case. Later in the day, the licensee also recognized that additional relief (1-ISI-21) would need to be submitted related to the qualification requirements for inspecting piping weld overlays using ultrasonic testing. The licensee indicated that an expedited approval would be required to support restart from the current refueling outage beginning November 27, 2008.

The licensee submitted the reliefs on November 25, 2008. NRC staff review determined that sufficient information had not been provided in support of Relief Request 1-ISI-21. The deficiencies were subsequently corrected by the licensee and the relief resubmitted on November 26, 2008. At 2:10 p.m. on November 26, 2008, the NRC verbally authorized the two alternatives proposed in accordance with Title 10 to the *Code of Federal Regulations* Section 50.55a(3)(i). The attached reflects the basis for the NRC staff's approval.

Docket No. 50-259

Enclosure: As stated

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By letters dated November 25, 2008 and November 26, 2008, Tennessee Valley Authority, the licensee for Browns Ferry Nuclear Plant, Unit 1, submitted requests for;

(1) an alternative to the requirements, in paragraph (h) in American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Code Case N-504-3, *Alternate Rules for Repair of Class 1, 2 and 3 Austenitic Stainless Steel Piping*, Section XI, Division 1. (Relief Request 1-ISI-22), and

(2) an alternative from qualification requirements for inspecting pipe weld overlays using ultrasonic examination (UT), in accordance with the requirements in Section XI of the ASME Code, Appendix VIII, Supplement 11. (Relief Request 1-ISI-21)

The alternatives are proposed pursuant to the provisions of paragraph 50.55a(a)(3)(i) of Title 10 of the *Code of Federal Regulations* (10 CFR) as providing an acceptable level of quality and safety.

Code Case N-504-3 was conditionally approved in Regulatory Guide 1.147, Revision 15, *Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1*. Approval was contingent upon licensees implementing the provisions of ASME Code Section XI, Nonmandatory Appendix Q, *Weld Overlay Repair of Class 1, 2 and 3 Austenitic Stainless Steel Piping Weldments*.

ASME Section XI, Appendix VIII requirements are mandated and supplemented by 10 CFR 50.55a(b)(2)(xiv),(xv) and (xvi).

Specifically, the licensee requests permission to utilize:

(1) a system leakage test in accordance with ASME Code Section XI, Article IWA-5000 in the 2001 edition with 2003 Addenda at nominal operating pressure and temperature in lieu of the system hydrostatic test required by paragraph (h) of Code Case N-504-3, following a weld overlay repair for a through wall leak at the safe-end on the N11B reactor pressure vessel instrument nozzle, and

(2) the EPRI Performance Demonstration Initiative Program in lieu of the ASME Code Section XI, Appendix VIII requirements.

The weld overlay repair is being implemented as an alternative to meeting specific requirements in ASME Code Section XI, Article IWA 4000. The licensee's proposed alternatives included the following information:

(a) the materials with which the weld overlay is to be fabricated

(b) the materials on which the weld overlay is applied

(c) the process to be utilized to perform the weld overlay
(d) the evaluation of the extent of condition for other nozzle safe-ends that could have similar flaws

(e) the nondestructive examination requirements to be performed on the overlay and portions of base metal, and

(f) the inservice inspection plan for the repaired location and the other nozzles that could have similar conditions

Hence, in accordance with 10 CFR 50.55a(a)(3)(i), the licensee provided information to demonstrate that the proposed alternatives would maintain an acceptable level of quality and safety with regard to ensuring the integrity of the subject Browns Ferry Nuclear Power Plant, Unit 1, N11B, pressure vessel instrument nozzle under all licensing basis conditions.

The NRC has completed its review of the information provided in the licensee's submittals. The NRC has concluded that the licensee provided adequate information regarding the design features, preservice inspection, and inservice inspection plan for the alternatives. Hence, we hereby authorize the licensee's implementation of the proposed alternatives in accordance with the information provided in the licensee letters dated November 25, 2008, and November 26, 2008. However, this verbal authorization does not preclude us from asking clarifying questions as we finalize our safety evaluation.