



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20545

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

ON ASME CODE CASE N-491

FOR

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY UNITS 1, 2, AND 3

DESK NUMBER 50-259, 50-260, AND 50-296

1.0 INTRODUCTION

By letter dated October 23, 1991, the Tennessee Valley Authority (TVA) requested approval, pursuant to 10 CFR 50.55a(a)(3), to implement the alternative rules of ASME Section XI Code Case N-491 dated March 14, 1991, entitled "Alternative Rules for Examination of Class 1, 2, 3, and MC Component Supports of Light-Water Cooled Power Plants Section XI, Division 1," as part of the Inservice Inspection (ISI) Programs for the following facilities:

1. Browns Ferry, Units 1, 2 and 3
2. Bellefonte, Units 1 and 2
3. Watts Bar, Units 1 and 2
4. Sequoyah, Units 1 and 2

The NRC staff has evaluated TVA's request, including applicable supporting information, to incorporate Code Case N-491 as part of the upgraded Inservice Inspection (ISI) Program for Browns Ferry Nuclear Plant (BFNP), Units 1, 2, and 3. The staff's safety evaluations regarding the use of Code Case N-491 at other TVA nuclear plants named above will be done at a later date on a plant specific basis.

2.0 EVALUATION

Code Case N-491 Alternative Rules for Examination of Class 1,2,3 and MC Component Supports of Light-Water Cooled Power Plants-Section XI, Division 1.

Component Identification

Class 1, 2, 3 and MC Piping Supports and Supports Other Than Piping Supports.

ASME Code Section XI Second Interval Requirements

1986 Edition, Subsection IWF, Class 1, 2, 3, and MC, Table IWF-2500-1, Category F-A, Item Nos. F1.10, F1.20, F1.3 and F1.4, Category F-B, Item Nos. F2.10,

F2.20, F2.30, and F2.40, Category F-C, Item Nos. F3.10, F3.20, F3.30, F3.40, and F3.50 requires Visual examination (VT-3).

TVA's Basis for Request

TVA proposes to apply Code Case N-491 as alternative rules for the examination of Class 1, 2, 3, and MC component supports when upgrading ISI programs to the 1986 Edition of the Code. The use of this Code Case will permit TVA to substantially reduce the ISI records required for component supports since the Code Case reduces the quantity of Examination Categories from 3 to 1 and the quantity of Item Numbers from 13 to 4. Use of this Code Case would also establish an ISI Program that would be in compliance with the IWF Rules of the 1990 Addenda of Section XI.

TVA's Proposed Alternative Examination

TVA proposes to apply Code Case N-491 as alternative rules for the examination of Class 1, 2, 3, and MC component supports.

Evaluation

Code Case N-491 will substantially reduce required ISI records, since it reduces the quantity of Examination Categories from 3 to 1 and the quantity of Item Numbers from 13 to 4. In Table 2500-1 "Examination Categories" of Code Case N-491, four Item Numbers designate the Class (1, 2, 3, and other) of piping support to be examined underneath just one Category (i.e., F-A). Whereas, current Code requirements divide the Classes of supports into three examination categories (i.e., F-A, F-B, and F-C) with 14 Item Numbers listing the parts of the supports to be examined.

Subparagraph N-491-2500 "Examination Requirements" describes the inspection attributes as follows: "The following shall be examined in accordance with Table-2500-1. (a) mechanical connections to pressure retaining components and building structure, (b) weld connections to building structure, ..." These examination attributes in Subparagraph N-491-2500 are identical to the 1986 Code Edition, Subsection IWF, Table IWF-2500-1, Item Number descriptions.

The examination sample size for Code Case N-491 is either equal to or greater than the 1986 Code requirements; e.g., Class 1, Category B-3 requires a sample value of 25% versus a sample value of 25% for Class 1 supports in Code Case N-491; Class 2, Category C-F-1 and C-F-2 of the 1986 Code requires a sample size of 7.5% or no less than 28 welds (in this case, supports) versus 15% sample size for supports required in Code Case N-491; and etc. In addition, Tables IWB, IWC, IWD-2411-1 "Inspection Program A" of the 1986 Code are identical with Table-2410-1 "Inspection Program A" of Code Case N-491. Furthermore, Code Case N-491 has been incorporated into the 1989 Edition, 1990 Addenda of the Code.

Code Case N-491 provides alternative rules for examination requirements that are at least equivalent to those currently required by Section XI, Division 1, Subsection IWF in determining the component supports subject to examination and establishing requirements for component supports. TVA's proposed alternative would provide an acceptable level of quality and safety.

3.0 CONCLUSIONS

The staff has determined that the alternative rules of Code Case N-491 proposed by TVA provide adequate assurance of the structural integrity of the subject component supports. TVA's proposed alternative to use ASME Code Case N-491 instead of the Code requirements has been reviewed and found to provide an acceptable level of quality and safety for BFNP, Units 1, 2, and 3.

Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the staff concludes that the proposed alternative to the applicable ASME Boiler and Pressure Code requirements is authorized, as requested, for BFNP, Units 1, 2 and 3.

Staff contributor: T. McLellan

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