April 3, 2003

Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNIT 2 — RELIEF REQUESTS NOS. 2-ISI-6, REVISION 2; 2-ISI-13; 2-ISI-14; AND 2-ISI-15; RELATED TO THE SECOND 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM (TAC NOS. MB5309, MB8130, MB8132, AND MB8133)

Dear Mr. Scalice:

By letter dated May 24, 2002, as supplemented by a letter dated February 14, 2003, the Tennessee Valley Authority (TVA) submitted four relief requests (RRs); Nos. 2-ISI-6, Revision 2; 2-ISI-13; 2-ISI-14; and 2-ISI-15; for Browns Ferry Nuclear Plant, Unit 2 (BFN Unit 2).

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed and evaluated the information provided in support of TVA's RRs. Based on the conclusions contained in the enclosed safety evaluation, the staff finds the following:

- For RR 2-ISI-6, Revision 2, and RR 2-ISI-14, relief is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the volumetric coverage obtained provides an acceptable level of quality and safety.

- For RR 2-ISI-13, relief is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the the visual examination (VT-2) of the nozzle area at each refueling outage in conjunction with the Class 1 System Leakage Test provides an acceptable level of quality and safety.

- For RR 2-ISI-15, the staff concludes that it is impractical for the licensee to comply with the specified requirements for the listed components. Redesigning the subject welds to obtain 100 percent coverage due to component configuration would result in a considerable burden to the licensee, without a commensurate increase in assurance of structural integrity. In addition, the volumetric coverage obtained by the licensee's examination provides reasonable assurance of structural integrity. Therefore, relief is authorized pursuant to 10 CFR 50.55a(g)(6)(i), provided that all related requirements of the respective ASME Code editions and addenda are met.

Granting relief pursuant to 10 CFR 50.55a(a)(3)(i) and 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger the life or property or the common defense and security, and is 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. Relief is authorized for the above requests for the duration of the second 10-year ISI interval for BFN Unit 2.

Sincerely,

/RA by B.Mozafari Acting for/

Allen G. Howe, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-260

Enclosure: As stated

cc w/enclosure: See next page

Granting relief pursuant to 10 CFR 50.55a(a)(3)(i) and 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger the life or property or the common defense and security, and is 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. Relief is authorized for the above requests for the duration of the second 10-year ISI interval for BFN Unit 2.

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SECOND 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM

RELIEF REQUESTS 2-ISI-6, REVISION 2; 2-ISI-13; 2-ISI-14; AND 2-ISI-15

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-260

1.0 INTRODUCTION

By letter dated May 24, 2002, as supplemented by a letter dated February 14, 2003, the Tennessee Valley Authority (TVA or the licensee) submitted four relief requests (RRs); Nos. 2-ISI-6, Revision 2; 2-ISI-13; 2-ISI-14; and 2-ISI-15; for the Second 10-Year Interval Inservice Inspection (ISI) Program for Browns Ferry Nuclear Plant, Unit 2 (BFN Unit 2). The U.S. Nuclear regulatory Commission (NRC) staff has reviewed the information submitted in the above letters and its safety evaluation is provided below.

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a, requires that ISI of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2 and 3 components be performed in accordance with Section XI of the ASME *Boiler and Pressure Vessel Code* (Code) applicable Edition and Addenda, except where specific relief has been requested by the licensee and authorized by the NRC pursuant to 10 CFR 50.55a(6)(g)(i), (a)(3)(i), or (a)(3)(ii). In order to obtain authorization or relief, the licensee must demonstrate that (1) conformance is impractical for its facility, (2) the proposed alternative provides an acceptable level of quality and safety or (3) compliance with the specified requirements would result in hardship or unusual difficulty 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 and subsequent intervals 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) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein.

The Code of record for the BFN Unit 2, second 10-year ISI interval is the 1986 Edition of the ASME *Boiler and Pressure Vessel Code*.

3.0 TECHNICAL EVALUATION

3.1 Request for Relief Request 2-ISI-6, Revision 2

Code Requirement:

ASME Section XI, "Rules for Inservice Inspection Nuclear Power Plant Components," 1986 Edition, No Addenda, Table IWB-2500-1, Category B-D, “Full Penetration Welds of Nozzles in Vessels,” Item No. B3.90, “Nozzle-to-Vessel Welds” requires volumetric examination of 100 percent of the Weld and Adjacent Base Material as depicted in Figure IWB-2500-7(a).

Component Identification:

ASME Section XI, Table IWB-2500-1, Examination Category B-D, Item No. B3.90

Components: Nine full penetration reactor pressure vessel (RPV) Nozzles welds
Welds: N-2D, N-2E, N-2K, N-3A, N-3C, N-4D, N-4E, N-8B, and N-10

> Licensee’s Code Relief Request: (as stated)
>
> Relief is requested from the ASME Section XI Code requirement (Table IWB-2500-1, Examination Category B-D, Item No. B3.90) to perform essentially 100 percent volumetric examination of the weld and adjacent base material.
>
> Licensee’s Basis for Requesting Relief: (as stated)
>
> The design configuration of the RPV nozzle-to-vessel welds precludes an ultrasonic examination of essentially 100 percent of the required volume. The component design configuration limits ultrasonic examination coverage of the welds to the percentages listed in Table 1 [in Enclosure 1 to the May 24, 2002, letter].
>
> Licensee’s Proposed Alternative Examination: (as stated)
>
> None. In lieu of the Code required essentially 100 percent volume ultrasonic examination, TVA proposes an ultrasonic examination of accessible areas to the maximum ex10t practical given the component design, configuration of the RPV nozzle-to-vessel weld, and nozzle size.

NRC Staff Evaluation:

ASME Section XI, "Rules for Inservice Inspection Nuclear Power Plant Components," 1986 Edition, No addenda, Table IWB-2500-1, Category B-D, “Full Penetration Welds of Nozzles in Vessels,” Item No. B3.90, “Nozzle-to-Vessel welds,” requires volumetric examination of 100 percent of the weld and adjacent base material.

The design configuration of nine RPV nozzle-to-vessel welds precludes an ultrasonic examination of essentially 100 percent of the required volume. The component design

configuration limits ultrasonic examination coverage of the nine welds to 56-72 percent coverage (Table 1 in Enclosure 1 to the May 24, 2002, letter). In order to examine the welds in accordance with the Code requirement, the RPV would require extensive design modifications. The physical arrangement of the nozzle-to-vessel weld precludes ultrasonic examination from the nozzle side. Scanning from the nozzle surface is ineffective due to the weld location and the asymmetrical inside surface where the nozzle and vessel converge. Increased coverage by scanning from the outside blend radius of the weld, where practical, was achieved. In response to the staff's request for additional information, the licensee indicated that the configuration of the vessel and internal piping prevents access with an automated system from the inside surface for welds N-2D, N2-E, N2-K, N4-D, N4-E, N-10, and N-8B. Welds N-3A, and N-3C are accessible but the technology has not been developed to perform the examination from the vessel inside surface for boiling water reactors. Therefore, proposed examination is to be performed only from the outside surface.

The previous examinations of the subject nozzles were completed during the Unit 2 First 10-Year ISI Interval (March 1, 1975, to May 24, 1992). The examination method ultrasonic testing (UT) and techniques utilized in the First 10-Year ISI Interval were basically the same as those discussed in this relief request; therefore, the percentage of examination coverage obtained in the first interval was essentially the same as reported in RR 2-ISI-6, Revision 2. The examinations performed on the subject welds in the first 10-Year ISI intervals met the applicable ASME Section XI weld examination acceptance criteria.

Radiographic examination as an alternate volumetric examination method was determined to be impractical due the radiological concerns. The performance of the ultrasonic examination to the extensive specified provides an acceptable level of quality and safety because the information and data obtained from the volume examined provides sufficient information to evaluate the overall integrity of the nozzle-to-vessel welds.

On the basis of the above discussion, the NRC staff concludes that the proposed alternative provides an acceptable level of quality and safety. Therefore, RR 2-ISI-6, Revision 2, is authorized pursuant to 10 CFR 50.55(a)(3)(i).

3.2 Request for Relief Request 2-ISI-13

Code Requirement:

ASME Section XI, "Rules for Inservice Inspection of Nuclear Power plant Components," 1986 Edition, No addenda, Table IWB-2500-1, Examination Category B-D, "Full Penetration Welds of Nozzles in Vessels," Item No. B3.100, "Nozzle Inside Radius Section" requires a volumetric examination of the inside radius sections of nozzles in vessels.

Component Identification:

ASME Section XI, Table IWB-2500-1, Examination Category B-D, Item No. B3.100 Components: One RPV nozzle inside sections, N10-NV (Standby Liquid Control nozzle inside radius section).

Licensee's Code Relief Request: (as stated)

Relief is requested from the requirement to perform the volumetric examination of the inside radius section of the ~ [approximately] 2-inch diameter Standby Liquid Control nozzle.

Licensee's Basis for Requesting Relief: (as stated)

The Standby Liquid Control nozzle is designed with an integral socket to which the boron injection piping is welded. The Standby Liquid Control nozzle is located in the bottom head of the reactor pressure vessel in an area that is inaccessible for examination from inside of the vessel. Therefore, the examinations must be performed from the outside surface of the vessel head. Because of the small diameter of the nozzle (i.e., ~2-inches) and the thickness of the head (i.e., ~6-inches), the ratio of the nozzle diameter to the head thickness make it impractical to perform an examination from the nozzle-to-head radius blend surface. Also, to perform the ultrasonic examination (UT) from the head surface the sound must travel through the full thickness of the head into a complex cladding/socket configuration. These geometric and material reflectors, inherent in the design, prevent a meaningful examination from being performed on the inside radius section of the nozzle. Additionally, the inside radius section socket is welded to piping which injects boron at locations far removed from the nozzle thus eliminating any thermal stratification possibility at the nozzle inside radius section.

Licensee's Proposed Alternative Examination: (as stated)

A visual (VT-2) examination of the nozzle area will be performed each refueling outage in conjunction with the Class 1 System Leakage Test.

NRC Staff Evaluation:

ASME Section XI, "Rules for Inservice Inspection of Nuclear Power plant Components," 1986 Edition, No addenda, Table IWB-2500-1, Examination Category B-D, "Full Penetration Welds of Nozzles in Vessels," Item No. B3.100, "Nozzle Inside Radius Section" requires a volumetric examination of the inside radius sections of nozzles in vessels.

Relief is requested from the requirement to perform the volumetric examination of the inside radius section of the ~2-inch diameter Standby Liquid Control nozzle. The licensee has presented valid technical arguments that support its assertion that volumetric examination of the inside radius section of the ~2-inch diameter Standby Liquid Control nozzle is not feasible and that the design of the Standby Liquid Control nozzle precludes high cycle fatigue resulting from thermal stratification.

The Standby Liquid Control nozzle has received a VT-2 examination in conjunction with the Class I System Leakage Test conducted during each refueling outage of the Second 10-Year ISI interval. Unit 2 has refueled six times during the second 10-Year ISI interval. Consequently, the Standby Liquid Control nozzle has undergone six VT-2 during the second 10-Year ISI interval. No leakage has been identified during the VT-2 examinations of the Standby Liquid Control nozzle.

The VT-2 examination of the nozzle area, which will be performed at each refueling outage in conjunction with the Class 1 System Leakage Test will provide an acceptable level of quality and safety, because the system leakage test will provide for detection of flaws when they are small and can be repaired prior to the Standby Liquid Control nozzle losing the ability to perform the intended function. Based on the impracticality of meeting the Code coverage requirement for the inner radius sections, and the reasonable assurance provided by the visual and leakage test of the Standby Liquid Control nozzle, it is recommended that the relief be granted pursuant to 10 CFR 50.55a(g)(6)(i).

On the basis of the above discussion, the NRC staff concludes that the proposed alternative provides an acceptable level of quality and safety. Therefore RR 2-ISI-13, is authorized pursuant to 10 CFR 50.55(a)(3)(i).

3.3 Request for Relief Request 2-ISI-14

Code Requirement:

ASME Section XI, "Rules for Inservice Inspection of Nuclear Power plant Components," 1986 Edition, No addenda, Table IWB-2500-1, Examination Category B-A, "Pressure Retaining Welds in Reactor Vessels," Item No. B1.12, "Longitudinal Shell Welds," and Item No. B1.30, "Shell-to-Flange Weld," require a volumetric examination of essentially 100 percent of the weld.

Component Identification:

ASME Section XI, Table IWB-2500-1, Examination Category B-D, Item Nos. B1.12 and B1.30 Components: Three RPV longitudinal welds, V-1-A, V-1-B and V-1-C; and one RPV shell-to-flange weld, C-5-FLG

> Licensee's Code Relief Request: (as stated)
>
> Relief is requested from the requirement to perform a volumetric examination of essentially 100 percent of the three RPV longitudinal shell welds and one RPV shell-to-flange weld.
>
> Licensee's Basis for Requesting Relief: (as stated)
>
> Areas of the C-5-FLG, V-1-A, V-1-B, and V-1-C welds are inaccessible for UT examination due to the design configuration of the RPV and vessel internals. The examinations were performed with automated ultrasonic equipment from the vessel inside surface utilizing the Advanced Inservice Reactor Inspection System 21 device, (AIRIS 21) and Enhanced Data Acquisition System-II equipment (EDAS™-II). The C-5-FLG weld scan limitations were due to a taper at the weld, and obstructions by the guide rods and steam nozzle plugs. The V-1-A, V-1-B, and V-1-C RPV longitudinal shell weld scans were obstructed by the jet pump restrainer bracket and jet pump diffuser.
>
> Licensee's Proposed Alternative Examination: (as stated)
>
> None. In lieu of the Code required essentially 100 percent volume ultrasonic examination, TVA proposes an ultrasonic examination of accessible areas to the

maximum extensive practical given the component design, and configuration of the subject welds.

NRC Staff Evaluation:

ASME Section XI, "Rules for Inservice Inspection of Nuclear Power plant Components," 1986 Edition, No addenda, Table IWB-2500-1, Examination Category B-A, "Pressure Retaining Welds in Reactor Vessels," Item No. B1.12, "Longitudinal Shell Welds," and Item No. B1.30, "Shell-to-Flange Weld," require a volumetric examination of essentially 100 percent of the weld. Relief is requested from the requirement to perform a volumetric examination of essentially 100 percent of the three RPV longitudinal shell welds and one RPV shell-to-flange weld.

The configuration of BFN Unit 2 RPV and vessel internals prevents essentially 100 percent examination coverage of the shell-to-flange weld (C-5-FLG) and three RPV longitudinal shell welds (V-1-A, V-1-B, and V-1-C). The examinations were performed with automated ultrasonic equipment from the vessel inside surface utilizing the AIRIS 21 device, and EDAS™-II equipment. To increase the examination coverage of the shell-to-flange weld, manual UT examinations were performed on the outside surfaces of the RPV in areas of noncoverage from the inside surface examination. The manual examination also encountered scan limitations due to the flange configuration. The total coverage obtained for the C-5-FLG weld was 76.6 percent. The C-5 FLG weld was examined during the first 10-year ISI Interval. The UT examination method and techniques utilized in the first interval were basically the same as those discussed in this relief request. Consequently, the percentage of examination coverage obtained in the first interval was essentially the same as reported in RR 2-ISI-14. The examinations performed on the C-5 FLG weld in the 10-Year ISI intervals met the applicable ASME Section XI weld examination acceptance criteria.

BFN Unit 2 has 15 longitudinal welds in the RPV shell courses. Twelve of these welds received essentially 100 percent coverage. Three of the fifteen welds did not receive essentially 100 percent coverage due to obstructions from the vessel internal components. The V-1-A, V-1-B, and V-1-C longitudinal shell weld scans were obstructed by the jet pump restrainer bracket and jet pump diffuser and received 76, 74, and 80 percent coverage respectively. The outside surfaces of these three welds were inaccessible due to the bio-shield concrete wall. The examination coverage limitations identified in RR 2-ISI-14 are a result of the first, and only, examination of the RPV longitudinal shell welds.

The UT examinations of the shell-to-flange course and longitudinal shell welds were performed to the maximum ex10t practical for maximum coverage. The performance of the ultrasonic examination to the extent specified provides an acceptable level of quality and safety because the information and data obtained from the volume examined and the 12 longitudinal welds that received essentially 100 percent coverage provides sufficient information to evaluate the overall integrity of the C-5-FLG, V-1-A, V-1-B, and V-1-C welds. Therefore, it is recommended that relief be granted pursuant to 10 CFR 50.55a(g)(6)(i).

On the basis of the above discussion, the NRC staff concludes that the proposed alternative provides an acceptable level of quality and safety. Therefore, RR 2-ISI-14, is authorized pursuant to 10 CFR 50.55(a)(3)(i).

3.4 Request for Relief Request 2-ISI-15

Code Requirement:

In its request for relief, the licensee identified Code Case N-577, "Risk-Informed Requirements for Class 1, 2, or 3 Piping, Method A," as being the applicable Code requirement. It should be noted that the NRC has not approved this Code Case for use. However, the NRC has approved the use of WCAP-14572 Rev. 1-NP-A for BFN Unit 2, which references the Code Case. Table 4.1-1 in the WCAP presents the risk informed piping examination matrix that the associated inspection routines are determined from. This table, for the subject welds, identifies examination requirement IWB-2500-8(c) as the applicable code requirement. Therefore, relief is requested from the requirements of ASME Code, Section XI, IWB-2500, Figure IWB-2500-8(c) to perform essentially 100 percent volumetric examination of the weld and adjacent base material.

The licensee requests relief from the requirement mandated by 10 CFR 50.55a(b)(2)(xv)(A)(2), which states, "Where examination from both sides is not possible on aus10itic welds, full coverage credit from a single side may be claimed only after completing a successful single sided Appendix VIII demonstration using flaws on the opposite side of the weld." At the time of examination, there was no Appendix VIII qualified procedure for single sided aus10itic weld examinations. Therefore, only 50 percent examination coverage can be claimed.

Component Identification:

ASME Code Class:	1 and 2
Reference:	WCAP-14572 Rev. 1-NP-A Table 4.1-1 which references ASME Code, Section XI, IWB-2500, Figure IWB-2500-8(c)
Examination Category:	R-A, Risk Informed Piping Examinations
Item Number:	R1.16 "Elements Subject to Intergranular Stress Corrosion Cracking (IGSCC)"
Description:	Piping Welds in the Reactor Recirculation System(RECIRC) and the Residual Heat Removal System (RHR)
Components:	11 Full Penetration Piping Welds (9 welds examined in Cycle 11 and 2 welds examined in Cycle 10)

Welds	Description
GR-2-09	Sweep-O-Let to Pipe Weld
GR-2-12	Sweep-O-Let to Pipe Weld
GR-2-15(OL)	Reducer to Pipe Weld
GR-2-18	Pipe to Cross Tee Weld
GR-2-19	Sweep-O-Let to Pipe Weld
GR-2-22	Sweep-O-Let to Pipe Weld
GR-2-35	Sweep-O-Let to Pipe Weld
GR-2-48	Sweep-O-Let to Pipe Weld
DRHR-2-03	Flued Head to Valve Weld
DRHR-2-09	Pipe to Tee Weld
DRHR-2-22	Valve to Pipe Weld

Licensee's Code RR: (as stated)

Relief is requested from the Risk-Informed Inservice Inspection Program, Code Case N-577 requirement (Table I N-577-2500 Examination Category R-A, Item No. R1.16) to perform essentially 100 percent volumetric examination of weld and adjacent base material.

Licensee's Basis for Requesting Relief: (as stated)

For nine of the welds above (excluding GR-2-15(OL) and DRHR-2-03) it is not possible to perform the volumetric ultrasonic examination from both sides of the weld due to the configuration of these components. And, because of the requirement mandated by 10 CFR 50.55a(b)(2)(xv)(A)(2), which states, "where examination from both sides is not possible on aus10itic welds, full coverage credit from a single side may be claimed only after completing a successful single sided Appendix VIII demonstration using flaws on the opposite side of the weld" [a qualified procedure is required to claim full coverage of the weld]. At the time of examination, there was no Appendix VIII qualified procedure for single sided examination of austenitic welds. Therefore, only 50 percent examination coverage can be claimed.

Welds GR-2-15(OL) and DRHR-2-03 were examined in April 1999, prior to the Performance Demonstration Initiative (PDI) Program requirements being mandated by 10 CFR 50.55a(b)(2)(xv)(A)(2), utilizing NDE [nondestructive examination] methods and techniques to the requirements of ASME Section XI Code, 1989 Edition, No addenda. [Nevertheless, the Code-required examination coverage of these welds could not be achieved]. Weld GR-2-15(OL) examination limitations were due to the component configuration, reducer to pipe, and the fact that the weld was overlayed and the overlay weld extended on to the reducer. One hundred percent Code coverage could not be achieved. Weld DRHR-2-03, examination limitations were due to the configuration of the components, valve to flued head. Due to the limited scan surfaces on both sides of the weld, only 85 percent Code coverage was obtained.

The performance of the ultrasonic examination of the subject areas to the maximum extent practical provides an acceptable level of quality and safety because the information and data obtained from the volume examined provided sufficient information to evaluate the overall integrity of the piping welds.

Licensee's Proposed Alternative Examination: (as stated)

None. In lieu of the Code required essentially 100 percent volume ultrasonic examination, TVA proposes an ultrasonic examination of accessible areas to the maximum extent practical given the component design and configuration of the aforementioned piping welds.

NRC Staff Evaluation:

The 1986 Edition of ASME Code, Section XI, IWB-2500, Figure IWB-2500-8(c) defines the volume of specified welds that require ultrasonic scanning to obtain 100 percent coverage. A

review of the submitted nondestructive testing data reports indicates that all examinations were limited to one side or partial coverage.

Welds GR-2-15(OL) and DRHR-2-03 were inspected in April 1999, before the PDI Program requirements were mandated by 10 CFR 50.55a(b)(2)(xv)(A)(2). These welds were examined as completely as the component configuration would allow, 80 and 85 percent respectively. The performance of limited volumetric examinations on each weld provides reasonable assurance that any active degradation mechanism would be identified if it existed. The performance of preservice inspection nondestructive testing and the leakage monitoring of the structural integrity of the welds by leakage monitoring systems provide additional assurance of the welds' structural integrity.

The other nine welds were inspected after the use of Appendix VIII was required by 10 CFR 50.55a(b)(2)(xv)(A)(2), but at the time of the examinations, no Appendix VIII qualified procedure for single-sided examination of aus10itic welds existed. Thus, according to Code, only 50 percent coverage can be claimed since the examinations were single-sided.

The licensee requested relief from the requirements of 10 CFR 50.55a(b)(2)(xv)(A)(2). Notwithstanding the fact that regulatory relief from 10 CFR 50.55a(b)(2)(xv)(A)(2) cannot be authorized under the provisions of 10 CFR 50.55a(a)(3), or be granted under 10 CFR 50.55a(g)(6)(i), the relief as requested by the licensee is not necessary. Since full-examination coverage is not being claimed via single-sided examination, 10 CFR 50.55a(b)(2)(xv)(A)(2) is still being met. Therefore, a request for relief from the ASME Code coverage requirement of 100 percent is appropriate.

A possible remedy to achieve full coverage is redesigning the welds; however, redesigning the welds to obtain coverage from both sides would involve significant expenditure in welding, component replacement, preservice examination and dose accumulation. On this basis, the staff considers it impractical to redesign the subject welds in order to complete a two-sided examination to achieve 100-percent coverage because there would not be a significant increase in assurance of structural integrity commensurate with the cost and dose. The staff also finds that the performance of limited volumetric examinations on each of these welds provides reasonable assurance that any active degradation mechanism would be identified if it existed. Therefore, the staff concludes the volumetric coverage obtained by the examinations provides reasonable assurance of structural integrity.

On the basis of the above discussion, the NRC staff concludes that the volumetric coverage obtained by the licensee's examinations provides reasonable assurance of structural integrity. It is impractical for the licensee to comply with the specified requirements for the listed components and requiring the licensee to redesign the subject welds to obtain 100 percent coverage due to component configuration would result in a considerable burden without a commensurate increase in assurance of structural integrity. Therefore, the licensee's proposed alternatives are authorized for the second 10-year ISI interval pursuant to 10 CFR 50.55a(g)(6)(i), provided that all related requirements of the respective editions and addenda are met.

4.0 CONCLUSION

The NRC staff concludes that for RRs Nos. 2-ISI-6, Revision 2; 2-ISI-13; and 2-ISI-14; relief is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternatives provide an acceptable level of quality and safety. For RR 2-ISI-15, the staff concludes that it is

impractical for the licensee to comply with the specified requirements for the listed components and requiring the licensee to redesign the subject welds to obtain 100 percent coverage due to component configuration would result in a considerable burden without a commensurate increase in assurance of structural integrity. In addition, the volumetric coverage obtained by the licensee's examinations provides reasonable assurance of structural integrity. Therefore, for RR 2-ISI-15, relief is authorized pursuant to 10 CFR 50.55a(g)(6)(i), provided that all related requirements of the respective ASME Code editions and addenda are met.

Granting relief pursuant to 10 CFR 50.55a(a)(3)(i) and 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger the life or property or the common defense and security, and is 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. Relief is authorized for the above requests for the duration of the second 10-year ISI interval.

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Date: April 3, 2003

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