



**Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000**

July 12, 2006

10 CFR 50.55a (g) (5) (iii)

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Stop: OWFN P1-35  
Washington, D.C. 20555-001

Gentlemen:

In the Matter of                     )                 Docket No. 50-259  
Tennessee Valley Authority         )

BROWNS FERRY NUCLEAR PLANT (BFN) - UNIT 1 - AMERICAN SOCIETY  
OF MECHANICAL ENGINEERS (ASME) SECTION XI, INSERVICE  
INSPECTION (ISI) PROGRAM - FIRST TEN-YEAR INSPECTION  
INTERVAL, REACTOR PRESSURE VESSEL LONGITUDINAL SHELL WELD  
EXAMINATIONS, REQUEST FOR RELIEF 1-ISI-21

Pursuant to 10 CFR 50.55a(g)(5)(iii), TVA requests relief from certain inservice inspection requirements in Section XI of the ASME Boiler and Pressure Vessel Code.

TVA has determined that three of the fifteen longitudinal shell welds in the BFN Unit 1 reactor pressure vessel have nondestructive examination (NDE) coverage limitations (less than 90 percent coverage completed) because of obstructions from other components, which exceeds that specified in Table IWB-2500-1 of ASME Section XI. Compliance with the extent of the examination which requires essentially 100 percent of the weld length is impractical and will result in unusual difficulty and unnecessary radiation exposure to various plant personnel without any compensating increase in the level of quality or safety. In lieu of the required essentially 100 percent (i.e., greater than 90 percent) coverage, BFN Unit 1 proposes an examination of the

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accessible areas to the maximum extent practical given the components design, and configuration.

TVA considers that the obtained coverage, to the maximum extent practical, will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), TVA requests that relief be granted.

This request for relief is being submitted as a result of discussions with the NRC staff regarding request for relief 1-ISI-20 submitted by TVA letter dated March 15, 2006.

The enclosure to this letter contains BFN Unit 1 request for relief 1-ISI-21. BFN Unit 1 is currently in a recovery outage, and TVA is in the process of completing the BFN Unit 1 first Ten-Year Inspection Interval NDE examinations. The second Ten-Year Inspection Interval will begin one year after restart from the recovery outage. TVA requests NRC approval of the enclosed BFN Unit 1 relief request by January 31, 2007.

There are no new commitments contained in this letter. If you have any questions, please telephone me at (256) 729-2636.

Sincerely,

A handwritten signature in black ink that reads "William D. Crouch". The signature is written in a cursive, slightly slanted style.

William D. Crouch  
Manager of Licensing  
and Industry Affairs

cc: See Page 3

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Enclosure

cc: (Enclosure)

(Via NRC Electronic Distribution)

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TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT (BFN)  
UNIT 1  
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI  
INSERVICE INSPECTION (ISI) PROGRAM  
(FIRST TEN-YEAR INSPECTION INTERVAL)  
REQUEST FOR RELIEF 1-ISI-21

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(SEE ATTACHED)

BROWNS FERRY NUCLEAR PLANT (BFN)  
UNIT 1  
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI  
INSERVICE INSPECTION (ISI) PROGRAM

(FIRST TEN-YEAR INSPECTION INTERVAL)

REQUEST FOR RELIEF 1-ISI-21

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Executive Summary:

The examination requirements of the BFN Unit 1 reactor vessel are performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code, 1995 Edition through the 1996 Addenda, the examination Code of record for BFN Unit 1. TVA is requesting relief from the specified inservice inspection requirements per 10 CFR 50.55a (g)(5)(iii). ASME Section XI Examination Category B-A, Pressure Retaining Welds in Reactor Vessel, Item Number B1.12, Longitudinal Shell Welds, requires the extent of the examination to include essentially 100 percent of the weld length, as documented in Table IWB-2500-1 (note 2) of ASME Section XI.

The configuration of the BFN Unit 1 Reactor Pressure Vessel (RPV) and vessel internals prevents 100 percent examination coverage of the longitudinal shell welds. BFN Unit 1 has a total of fifteen longitudinal shell welds in the RPV. Three of the fifteen welds did not receive greater than 90 percent coverage because of obstructions from other components. The physical examination limitations occur when the ASME Section XI Code examination requirements are applied in areas of components constructed and fabricated to early plant designs, which were not required to be "designed for access." The BFN Unit 1 construction permit was issued prior to January 1, 1971, and is therefore exempt from complying with certain

provisions of the Code requirements for examination access pursuant to 10 CFR 50.55a(g)(4). Compliance with the extent of the examination which includes essentially 100 percent of the weld length is impractical and will result in unusual difficulty and unnecessary radiation exposure to plant personnel without any compensating increase in the level of quality or safety.

Therefore, in lieu of the required essentially 100 percent (i.e., greater than 90 percent), TVA proposes an examination of the accessible areas to the maximum extent practical given the components design, and configuration. TVA considers that the obtained coverage to the maximum extent practical will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), TVA requests that relief be granted.

This request for relief is consistent with one submitted by TVA BFN Unit 1 dated March 15, 2006, as an alternate to the 10 CFR 50.55a(g)(6)(ii)(A) augmented examination of the BFN Unit 1 Reactor Vessel requirement.

<u>Unit:</u>	One (1)
<u>ISI Interval:</u>	ASME Section XI, First Ten-Year ISI Interval (Interval ends one year following unit restart)
<u>System(s):</u>	Reactor Pressure Vessel (RPV)
<u>Components:</u>	RPV Longitudinal Welds
<u>ASME Code Class:</u>	ASME Code Class 1
<u>ASME Section XI Code Edition:</u>	1995 Edition, 1996 Addenda

Code Table: IWB-2500-1  
Examination  
Category: B-A, Pressure Retaining Welds in Reactor Vessels.

Examination Item  
Number: B1.12 Longitudinal Shell Welds

Code Requirement: The 1995 Edition, 1996 Addenda, ASME Section XI, Table IWB-2500-1, Examination Category B-A, Item Numbers B1.12 requires a volumetric examination method that includes essentially 100 percent of the weld length.

Code Requirements  
From Which Relief  
Is Requested: Relief is requested from the requirement to perform a volumetric examination of essentially 100 percent of the three RPV longitudinal shell welds.

List of Items  
Associated With  
The Relief Request:

Component	Percent Coverage	Limitation
V-3-A	77.7%	Core Spray Piping and Feed water Spargers
V-3-B	77.4%	Core Spray Piping and Feed water Spargers
V-3-C	76.6%	Core Spray Piping and Feed water Spargers

Basis For Relief  
Request: Certain areas of the V-3-A, V-3-B, and V-3-C welds are inaccessible for ultrasonic 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. The V-3-A, V-3-B, and V-3-C RPV longitudinal shell weld scans were obstructed by the core spray piping and feedwater spargers.

Alternative  
Examination:

In lieu of the ASME 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 subject welds.

Justification  
for The Granting  
of Relief:

The configuration of BFN Unit 1 RPV and vessel internals prevents essentially 100 percent examination coverage of the three RPV longitudinal shell welds (V-3-A, V-3-B, and V-3-C). The examinations were performed with automated ultrasonic equipment from the vessel inside surface. Unit 1 has fifteen longitudinal welds in the RPV shell courses. Twelve of these welds received essentially 100 percent (i.e., greater than 90 percent) coverage. Three of the fifteen welds did not receive essentially 100 percent coverage due to obstructions from the vessel internal components.

The V-3-A, V-3-B, and V-3-C longitudinal shell weld scans were obstructed by the core spray piping, feedwater sparger and received 77.7, 77.4, and 76.6 percent examination coverage respectively. The outside surfaces of these welds are inaccessible due to RPV outside insulation design and proximity of the biological shield wall.

The ultrasonic examinations of the longitudinal shell welds were performed to the maximum extent practical for maximum coverage. The ultrasonic examinations of the longitudinal shell welds were performed with equipment, personnel, and procedures qualified to the Performance Demonstration Initiative (PDI) Program in accordance with the requirements of the 1995 Edition, 1996 Addenda of ASME Section XI, Division 1, Appendix VIII



as mandated by 10 CFR 50.55a(g)(6)(ii)(C). There were no recordable indications identified during the examinations.

Since the BFN construction permit was issued prior to January 1, 1971, BFN is exempt from complying with certain provisions of the ASME Code requirements for examination access as granted by 10 CFR 50.55a(g)(4).

Compliance with the 1995 Edition, 1996 Addenda of ASME Section XI is not practical and will result in unusual difficulty and unnecessary radiation exposure to plant personnel without any compensating increase in the level of quality or safety. TVA considers that the obtained coverage to the maximum extent practical will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(g)(5)(iii), TVA requests that relief be granted.

**Implementation**  
**Schedule:**

This request for relief is applicable to the BFN Unit 1, ASME Section XI, First Ten-Year Inservice Inspection Interval. (The first Ten-Year ISI Inspection Interval will end one year following restart of the unit)

**Attachments:**  
**Drawing/Sketch**

1-CHM-0992-C-01  
BFN-1 ID RPV Coverage Map



