

September 12, 2003

10 CFR 50.55a(a)(3)(i)

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Stop: OWFN P1-35  
Washington, D.C. 20555-0001

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 - REQUEST FOR RELIEF PDI-2 -  
CLARIFICATION AND ADDITIONAL INFORMATION**

This letter provides clarification and changes to BFN Unit 1 request for relief PDI-2, regarding the examination volumes of Class 1 reactor vessel pressure retaining nozzle-to-vessel welds. TVA submitted PDI-2 request for relief by letter dated October 25, 2002, for the BFN Unit 1, ASME Section XI, Inservice Inspection program, first Ten-Year interval.

PDI-2 allows TVA to limit the extent of the examination volume for reactor pressure vessel nozzle-to-vessel welds to no more than one-half inch beyond the widest part of the weld. PDI-2 reduces the required weld examination volumes from those shown in the 1995 Edition, 1996 Addenda of the ASME Section XI Code, Subsection IWB, Figures IWB-2500-7(a) and (b), [i.e., one-half the vessel shell thickness beyond the widest part of the weld].

During its review of the BFN request for relief PDI-2, the NRC staff identified a question regarding the exact number

of welds that had received a preservice weld volume examination defined by T/2 (i.e., one-half the base material thickness). TVA and the NRC staff held a teleconference to discuss the staff's question.

U.S. Nuclear Regulatory Commission  
Page 2  
September 12, 2003

As a result of that teleconference, TVA provided a response to the NRC question and a revised request for relief PDI-2 in a letter dated June 18, 2003. In a subsequent teleconference, the staff requested specific information regarding the BFN Unit 1 preservice and inservice RPV weld examinations. TVA is providing the requested information in the enclosure to this letter.

TVA seeks review of this request for relief by November 3, 2003, to support Unit 1 restart activities.

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

Sincerely,

Original signed by:

T. E. Abney  
Manager of Licensing  
and Industry Affairs

Enclosure

cc (Enclosure):

(Via NRC Electronic Distribution)  
Mr. Stephen J. Cahill, Branch Chief  
U.S. Nuclear Regulatory Commission  
Region II  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, Georgia 30303-8931

NRC Resident Inspector  
Browns Ferry Nuclear Plant  
10833 Shaw Road  
Athens, Alabama 35611-6970

Mr. Kahtan N. Jabbour, Senior Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint, North  
(MS 08G9)  
11555 Rockville Pike  
Rockville, Maryland 20852-2739

U.S. Nuclear Regulatory Commission  
Page 3  
September 12, 2003

DTL:JWD:BAB

Enclosure

cc (Enclosure):

A. S. Bhatnagar, PAB 1E-BFN  
M. J. Burzynski, BR 4X-C  
G. F. Deaton, CMB 1B-BFN  
J. E. Maddox, LP 6A-C  
R. F. Marks, PAB 1C-BFN  
R. G. Jones, NAB 1A-BFN  
D. C. Olcsvary, LP 6A-C  
C. M. Root, PAB 1G-BFN  
J. R. Rupert, NAB 1A-BFN  
K. W. Singer, LP 6A-C  
M. D. Skaggs, POB 2C-BFN  
E. J. Vigluicci, ET 11A-K  
NSRB Support, LP 5M-C  
EDMS-K

s:\lic\submit\subs\U1 PDI-2 RAI.doc

## ENCLOSURE

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 PDI-2

### RESPONSE TO NRC QUESTION

---

TVA submitted request for relief, PDI-2, by letter dated October 25, 2002, for the BFN Unit 1, ASME Section XI, Inservice Inspection program, first Ten-Year interval. During its review of the BFN request, the NRC staff identified a question regarding the exact number of welds that had received a preservice weld volume examination defined by T/2 (i.e., one-half the base material thickness). As a result, TVA provided a response to the NRC question and a revised request for relief PDI-2 in a letter dated June 18, 2003. In a subsequent teleconference, the staff requested specific information regarding the BFN Unit 1 preservice and inservice RPV weld examinations. The NRC request, and the corresponding TVA response, is provided below.

#### NRC Question

Provide a list of the reactor pressure vessel (RPV) welds within the scope of this request for relief, in table format, and show the results of the completed preservice and inservice weld examinations.

#### TVA Response

The preservice examination report for Browns Ferry (BFN) Unit 1, dated January 20, 1973, includes examination details for full penetration nozzle-to-vessel weld 4 inches in diameter and larger. The preservice examinations were not required by regulations, 10 CFR 50.55a(g)(1), given the BFN Unit 1 construction permit date of May 10, 1967, and were performed on a voluntary basis. The ultrasonic scan techniques and methods employed during preservice examinations

provided coverage of the 1/2T base material adjacent to the weld to the extent practical.

Eighteen of the BFN Unit 1 nozzle-to-vessel welds have been examined inservice to the extent practical, including the 1/2T base material, during the first interval. The welds examined inservice include at least one nozzle-to-vessel weld of each size/grouping for which relief is requested. There were no reportable indications identified by either the preservice or inservice examinations. The preservice and subsequent inservice examinations performed to date provide the justification basis for granting the relief specified in PDI-2 for BFN Unit 1.

The attachment to this enclosure provides a table listing the Unit 1 RPV welds represented within the scope of this request for relief. The table also provides the results of previous UT weld examinations (preservice and inservice), examination limitations, and major weld repair areas.

**ATTACHMENT**  
**BFN UNIT 1 REACTOR PRESSURE VESSEL**  
**WELD EXAMINATIONS**

Component Welds	Major Repair Areas (Note 2)	PSI Exam (Note 1)	Limitations (Note 3)	Scan Angles (Note 4)	ISI Exam (Note 5)	Limitations (Note 3)	Scans
N1A-NV (28")	2	Yes – T/2	Yes, see note	0, 60 & 70	No	n/a	n/a
N1B-NV (28")	4	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	Insulation- <b>Note 6</b>	0, 45, 60 & 70
N2A-NV (12")	2	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	No additional	0, 45, 60 & 70
N2B-NV (12")	2	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	No additional	0, 45, 60 & 70
N2C-NV (12")	3	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	Insulation- <b>Note 6</b>	0, 45 60 & 70
N2D-NV (12")	3	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	Insulation- <b>Note 6</b>	0, 45, 60 & 70
N2E-NV (12")	1	Yes – T/2	"	0, 60 & 70	No	n/a	n/a
N2F-NV (12")	None identified	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	Insulation- <b>Note 6</b>	0, 45, 60 & 70
N2G-NV (12")	1	Yes – T/2	"	0, 60 & 70	No	n/a	n/a
N2H-NV (12")	1	Yes – T/2	"	0, 60 & 70	No	n/a	n/a
N2J-NV (12")	2	Yes – T/2	"	0, 60 & 70	Yes – T/2 (3/5)	No additional	0, 45 & 60
N2K-NV (12")	1	Yes – T/2	"	0, 60 & 70	No	n/a	n/a
N3A-NV (26")	None identified	Yes – T/2	"	0, 60 & 70	No	n/a	n/a
N3B-NV (26")	None identified	Yes – T/2	"	0, 60 & 70	No	n/a	n/a
N3C-NV (26")	None identified	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	Insulation- <b>Note 6</b>	0, 45, 60 & 70
N3D-NV (26")	None identified	Yes – T/2	"	0, 60 & 70	No	n/a	n/a
N4A-NV (12")	2	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	Insulation- <b>Note 6</b>	45, 60
N4B-NV (12")	3	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	Insulation- <b>Note 6</b>	45, 60
N4C-NV (12")	3	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	Insulation- <b>Note 6</b>	45, 60
N4D-NV (12")	2	Yes – T/2	"	0, 60 & 70	Yes – T/2 (3/5)	No additional	0, 45, 60 & 70
N4E-NV (12")	2	Yes – T/2	"	0, 60 & 70	No	n/a	n/a
N4F-NV (12")	3	Yes – T/2	"	0, 60 & 70	No	n/a	n/a
N5A-NV (10")	2	Yes – T/2	"	0, 60 & 70	No	n/a	n/a
N5B-NV (10")	2	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	Minor @6:00	0, 45, 60 & 70
N6A-NV (6")	None identified	Yes – T/2	"	0, 60 & 70	Yes – T/2 (2/4)	No additional	0, 45, 60 & 70
N6B-NV (6")	None identified	Yes – T/2	"	0, 60 & 70	Yes – T/2 (3/6)	No additional	0, 45 & 60
N7-NV (4")	None identified	Yes – T/2	"	0, 60 & 70	Yes – T/2 (3/6)	No additional	0, 45 & 60
N8A-NV (5")	None identified	Yes – T/2	Not detailed	0, 45, 60 & 70	Yes – T/2 (2/4)	No additional	0, 45, & 60
N8B-NV (5")	None identified	Yes – T/2	Not detailed	0, 45, 60 & 70	No	n/a	n/a
N9-NV (4")	2	Yes – T/2	Yes, see note	0, 60 & 70	Yes – T/2 (2/4)	Insulation- <b>Note 6</b>	0, 45 & 60
N10-NV (2.5")	None identified	No	n/a	n/a	No	n/a	n/a

28 nozzle-to-vessel welds in the RPV shell and 3 nozzle-to-head welds in the RPV head (N6A, N6B, & N7)

- Note 1:** Preservice information is taken from the Magnaflux Final Report for BFN Unit 1 PSI/baseline, which was performed post RPV hydro.
- Note 2:** Repair information is from General Electric's BFN Unit 1 RPV Examination Plan. Items identified as "Major Repair" are greater than 10% of the base material thickness or if the discrepancy appeared significant to the reviewer. The majority of the repair areas were located in the weld region.
- Note 3:** The nozzle is a scan obstruction in a barrel-type configuration, transducer lift-off occurs at the nozzle-to-shell (or head) weld radius blend area. Ultrasonic scans are conducted from the RPV shell (or head) side with the identified transducers.
- Note 4:** The transducer angles are listed. Scans from the RPV shell side include directions perpendicular and oblique to the weld and base material in addition to those scans conducted parallel to the weld. The oblique directions were not scanned on the RPV head due to curvature.
- Note 5:** Inservice data is from TVA records in the identified inspection period/outage cycle, e.g., 2/4 = 2<sup>nd</sup> period/outage Cycle 4.
- Note 6:** The insulation interferences noted on the inspection data sheets caused only minor scan limitations.