

# CATEGORY 1

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       50-296 Browns Ferry Nuclear Power Station, Unit 3, Tennessee      05000296  
 AUTH. NAME      AUTHOR AFFILIATION  
 ABNEY, T.E.      Tennessee Valley Authority  
 RECIP. NAME      RECIPIENT AFFILIATION  
                   Records Management Branch (Document Control Desk)

SUBJECT: Provides supplemental info requested by ltr drd 981019 to  
           support NRC staff review of proposed Tech Specs Change  
           TS-393. No commitments contained in ltr. With one oversize  
           drawing.

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

November 13, 1998

TVA-BFN-TS-393

U.S. Nuclear Regulatory Commission  
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Washington, D.C. 20555

Gentlemen:

In the Matter of )  
Tennessee Valley Authority )

Docket Nos. 50-260  
50-296

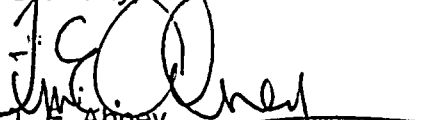
**BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 2 AND 3 - RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING PRESSURE-TEMPERATURE CURVE UPDATE, TS-393 (TAC NOS. MA1304 AND MA1305)**

Reference: NRC to TVA letter dated October 19, 1998, Browns Ferry Nuclear Plant, Units 2 and 3 - Request for Additional Information Regarding Pressure - Temperature Update

The enclosures provide supplemental information requested by the reference letter to support the NRC staff's review of proposed technical specification change TS-393. TVA submitted TS-393 on March 3, 1998 to revise the BFN Units 2 and 3 pressure-temperature curves to extend the validity of the curves to 32 effective full power years. The information contained in the enclosures reflects clarifications to the questions as discussed with the NRC staff during a November 4, 1998 telephone call. //

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

Sincerely,

  
T. E. Abney  
Manager of Licensing  
and Industry Affairs

Enclosures  
cc: See page-2

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Drawing located in Central Files



U.S. Nuclear Regulatory Commission

Page 2

November 13, 1998

Enclosures

cc (Enclosures):

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11

## ENCLOSURE 1

### TENNESSEE VALLEY AUTHORITY BROWNS FERRY NUCLEAR PLANT (BFN) UNITS 2 AND 3

#### RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING PRESSURE-TEMPERATURE CURVE UPDATE, TS-393

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##### RAI Question 1 - ART Values

*Provide the adjusted reference temperature (ART) calculations for all bellline, flange, and bottom head materials that were not included in your submittal.*

##### Response

##### References:

1. TVA to NRC letter dated July 14, 1995, Browns Ferry Nuclear Plant (BFN) - Units 1, 2, and 3 - Supplemental Information For Proposed Technical Specification (TS) No. 349 - Reactor Vessel Pressure-Temperature (P-T) Curves And Boltup Temperatures
2. TVA to NRC letter dated March 3, 1998, Browns Ferry Nuclear Plant (BFN) - Units 2 and 3 - Technical Specification (TS) Change No. 393 - Pressure-Temperature Curve Update

The tables provided below list the initial  $RT_{NDT}$  values for the Unit 2 and Unit 3 non-bellline components. The limiting initial  $RT_{NDT}$  values were utilized to develop the non-bellline curves 1, 2, and 3 shown on Tables 3 and 4 of Reference 2. These data were previously provided to NRC by Reference 1.

NON-BELTLINE $RT_{NDT}$ 'S - UNIT 2	
COMPONENT / REGION	$RT_{NDT}$
Closure Region	22°F
Bottom Head Region	42°F
Jet Pump Nozzle	54°F
All Other Non-Bellline	≤40°F

NON-BELTLINE $RT_{NDT}$ 'S - UNIT 3	
COMPONENT / REGION	$RT_{NDT}$
Closure Region	10°F
Bottom Head Region	58°F
Recirc. Inlet Nozzle	46°F
Recirc. Outlet Nozzle	50°F
Steam Outlet Nozzle	42°F
Feedwater Nozzle	42°F
Jet Pump Instr. Nozzle	58°F
All Other Non-Bellline	≤40°F

## ENCLOSURE 1

### TENNESSEE VALLEY AUTHORITY BROWNS FERRY NUCLEAR PLANT (BFN) UNITS 2 AND 3

#### RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING PRESSURE-TEMPERATURE CURVE UPDATE, TS-393

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##### RAI Question 2 - ART Values for the N16 Instrumentation Nozzle

*If the N16 instrumentation nozzles are in the beltline regions of the Browns Ferry reactor pressure vessels, then include the ART calculations for the instrumentation nozzles among the ART calculations for the materials in Question 1.*

##### Response

The N16 instrumentation nozzles are two 2-inch diameter penetrations that are located in Shell Segment Assembly Course #2 whose centerline is located at 366 inches above reactor zero, which is the top of the active fuel region (216" - 366"). The "nozzle", which is used for instrumentation, consists of a tapered 2-inch Alloy 600 pipe that is welded to the inside of the reactor pressure vessel (RPV) using a partial penetration weld. A detail of the Unit 3 N16 instrumentation nozzle is shown on Reference Drawing 1, contained in Enclosure 2. The reactor feedwater nozzles are six 12-inch diameter nozzles that are located in Shell Segment Assembly Course #3. (See Enclosure 2, Reference Drawing No. 2). The nozzle is attached to the inside and outside of the RPV via a full penetration weld.

Since the stresses in the feedwater nozzles bound those of the instrumentation nozzles, the analysis for the 12-inch feedwater nozzles is considered to be bounding for the N16 instrumentation nozzles.





**ENCLOSURE 2**

**TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT (BFN)  
UNITS 2 AND 3**

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING  
PRESSURE-TEMPERATURE CURVE UPDATE, TS-393**

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**Reference Drawings**

- 1. Unit 3 - Shell segment Assembly Course #2, B&W Dwg. No. 142116E, Sht. 1**
- 2. Units 1 and 2 - 12" Feedwater Nozzle, B&W Dwg. No. 122866E, Sht. 2**