

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

July 13, 1981

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555



Dear Mr. Denton:

In the Matter of the )  
Tennessee Valley Authority )

Docket Nos. 50-259  
50-269  
50-296

T. A. Ippolito's letter to H. G. Parris dated May 29, 1981 requested that we provide additional justification and safety analyses for license amendment requests TVA BFNP TS 161, TS 162, and TS 163. The additional justification and safety analysis for TS 161 is provided as Enclosure 1. A description of changes, justification, and safety analysis for TS 163 are contained in Enclosure 2. The requested information for TS 162 will be submitted separately at a later date.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager  
Nuclear Regulation and Safety

Subscribed and sworn to before  
me this 13<sup>th</sup> day of July 1981.

Notary Public

My Commission Expires 4/4/82

Enclosures

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ENCLOSURE 1

SUPPLEMENTAL INFORMATION FOR LICENSE AMENDMENT  
REQUEST TVA BFNP TS 161  
BROWNS FERRY NUCLEAR PLANT UNIT 1-  
(DOCKET NO. 50-259)

A. TORUS RELATED CHANGES

Numerous modifications are being implemented in the unit 1 torus during the current unit 1 refuel outage as part of the Mark I Containment Program. These modifications were determined as necessary by TVA to restore the originally intended margins of safety in the containment design. The following is a general discussion of why the changes to the technical specifications are proposed. The details of the modifications design will be provided in the Browns Ferry Plant Unique Analysis (PUA), scheduled for submittal in early 1982. By letter from T. A. Ippolito to H. G. Parris dated January 13, 1981 TVA received the license orders for torus modification. The order states that the plant-unique analyses should be submitted for confirmatory review by the staff. From that letter and other staff discussions it is our understanding that the PUA is to be given a post-implementation audit by the NRC staff.

DESCRIPTION AND JUSTIFICATION OF CHANGES

Page 227 - Change in torus water level limits from "-7 inches ( $\Delta P = 0$  psid)" and "-8 ( $\Delta P = 0$  psid)" to "-6.25 inches ( $\Delta P = 0$  psid)" and "-7.25 inches ( $\Delta P = 0$  psid)", respectively. There are 15-inch by 15-inch sealed box beams being added as support for the safety relief valve lines, and HPCI-RCIC internal supports. Addition of these supports will result in appreciable water displacement. Calculations indicate that the box beams and HPCI-RCIC supports will increase the torus water level approximately 3/4 inch due to their presence. This rise in the torus water level is reflected in these revised technical specification values.

Page 235a -Change in the setpoint for the drywell-wetwell differential pressure control ( $\Delta P$ ) from 1.3 psid to 1.1 psid. Downcomer water clearing loads are greatly reduced by physically shortening the downcomers and imposing a drywell-wetwell  $\Delta P$ . The Browns Ferry unique loads were determined by considering a differential pressure of 1.10 psid at the maximum allowable torus water level. In order to be consistent with this analysis the technical specification associated with the  $\Delta P$  control has been established at 1.10 psid.

Page 267 -Revisions to the bases to reflect shortening of the downcomers by approximately one foot, different values of water volume (at maximum water level), and new values for minimum water level indication.

Page 268 -Change of the peak temperature of the torus water from 160°F to 200°F local. During the current unit 1 refuel outage the T-quenchers are being added to the safety-relief valve discharge device. The NRC licensed value for the T-quencher is 200°F local water temperature (to avoid excessive steam condensing loads). This technical specification change is needed to reflect that T-quencher licensed value of temperature.

Page 269 -Change to the bases of the values for the  $\Delta P$  control from 1.3 to 1.1 psid and the value for the range of downcomer submergence from "4.0 feet to 4.60 feet" to "3.06 feet to 3.58 feet." This change is needed to reflect the planned modifications of downcomer shortening and revised differential pressure control setpoint.

## SAFETY ANALYSIS

As mentioned earlier the detailed safety analysis for the torus modifications (Browns Ferry Plant Unique Analysis) will be submitted later for confirmatory review by the NRC staff.

### B. CONTAINMENT PURGE

During the current unit 1 refueling outage we are modifying the containment purge system to satisfy applicable requirements of NRC Branch Technical Position CSB 6-4 regarding valve closure times and debris screens. These modifications were designed in response to NRC letters from D. G. Eisenhower to All Light Water Reactors dated September 27, 1979, and from T. A. Ippolito to H. G. Parris dated October 22, 1979.

Pages 251 and 252 - Decrease of Valve Closure Times -TVA has performed a safety evaluation on the modifications and has concluded that the changes are a safety improvement. The faster valve closure times reduce analytic offsite dose and the debris screens provide further protection against foreign material entering the purge ducting and interfering with closure of the purge valves.

As operability analysis of the containment purge valves was submitted to NRC by letter from L. M. Mills to T. A. Ippolito dated June 2, 1981. That analysis shows that the purge valves are adequate for closure against design basis Loss-of-Coolant accident forces.



C. FURTHER JUSTIFICATION FOR TVA BFNP TS 161

Pages 30 and 219 -Change of safety relief valve total relief capacity from 82.6 percent to 83.9 percent.

Explanation of Change

The value of 83.9 percent total relief capacity is derived from the values of 77.46 percent for 12 SRV's operable out of a total of 13 SRV's. The capacity of 77.46 percent of nuclear boiler rated steam flow, as listed in the BF 1 Reload 4 Supplemental Reload Licensing submittal, was calculated based on certified valve capacity for a 5.125-inch throat diameter valve (869,000 lbs/hour at 1,090 + 3 psig) issued by the ASME National Board of Boiler and Pressure Vessel Inspectors. The certified values are obtained by testing and are listed as 90 percent of the measured capacity values for conservatism.

Pages 122, 123, 124, and 129

Rod Sequence Control System (RSCS) Requirement Changes

In order to obtain additional physics data special cold criticality tests have been planned for this cycle. These criticality tests require suspension of RSCS constraints by means of the individual rod bypass switches. This testing is planned as part of the Lead Test Assembly program which TVA is participating with GE in.

An analysis was performed to show that a postulated rod drop accident involving control rods withdrawn during the cold critical test would not exceed the peak fuel enthalpy design limit of 280 cal/gm. The rod worth minimizer (RWM) will be programmed to ensure adherence to the withdrawal sequence specified in the cold critical test procedure. The RWM must be operable for this test.

Pages 143 and 145

These changes are administrative changes that remove references to nonapplicable technical specification requirements. These changes do not affect any actual limiting conditions for operation; therefore, plant safety is not affected.

Page 158 -Reformatting of the information shown on the page. The portion of information in sections 3.5.H and 4.5.H shown on page 159 was moved to page 158 without changing any of the information.

ENCLOSURE 2

SUPPLEMENTAL INFORMATION FOR LICENSE AMENDMENT  
REQUEST TVA BFNP TS 163  
BROWNS FERRY NUCLEAR PLANT  
(DOCKET NOS. 50-259, -260, -296)

Description of Change

Units 1 and 2 - page 332

Unit 3 - page 362

This change deletes a reference to the fire restoration coordinator, section 6.9.

Reason/Justification for Change

Section 6.9, Overall Restoration Coordinator has been deleted from the Browns Ferry Technical Specifications by Amendments 71, 68, and 43 to licenses DPR-33, -52, and -68 (T. A. Ippolito's letter to H. G. Parris dated June 18, 1981).

Description of Change

Units 1 and 2 - pages 332, 346

Unit 3 - pages 362, 376

Changes title of responsible individual from "Chief, Nuclear Generation Branch" to "Assistant Director of Nuclear Power (Operations)."

Units 1 and 2 - page 337

Unit 3 - page 367

Changes titles of responsible individuals from "Director, Power Production" and "Chief, Nuclear Generation Branch" to "Director of Nuclear Power" and "Assistant Director of Nuclear Power (Operations)."

Reason/Justification for change

These changes reflect organizational changes which resulted from the separation of TVA's Division of Power Production into the Division of Nuclear Power and the Division of Fossil and Hydro Power.

#### Description of Change

Units 1 and 2 - page 335

Unit 3 - page 365

These changes revise the membership of the Plant Operations Review Committee. They specify that section supervisors (i.e., electrical maintenance section supervisor, mechanical maintenance section supervisor, etc) comprise the PORC. Also, these changes allow the plant superintendent's representative to chair the meeting rather than specifying an assistant plant superintendent.

#### Reason/Justification for Changes

These changes clarify the PORC membership and reflect a change in plant organization. These organizational changes were made to standardize the Browns Ferry organization with other TVA nuclear plants.

#### Description of Change

Units 1 and 2 - page 336

Unit 3 - page 366

This change corrects a typographic error (changes "porposed" to "proposed").

#### Description of Change

Units 1 and 2 - page 353

Unit 3 - page 388

This changes the word "the" to "an" to reflect the fact that there are three assistant plant superintendents.



Units 1 and 2 - page 362

Unit 3 - page 392

This figure represents current plant organization.

Reason/Justification for Changes

These changes reflect a change in plant organization. This reorganization helps standardize Browns Ferry Nuclear Plant organization with other TVA nuclear plants.

Description of Change

Units 1 and 2 - pages 361, 363

Unit 3 - pages 391, 393

These change the names of the responsible organizations or individuals within TVA from "Division of Power Production" and "Nuclear Generation Branch" to "Manager of Power Operations" and "Division of Nuclear Power."

Reason/Justification for Changes

These changes reflect organizational change which resulted from the separation of TVA's Division of Power Production into the Division of Nuclear Power and the Division of Fossil and Hydro Power.

Description of Changes

Units 1 and 2 - page 364

Unit 3 - page 394

This change assigns responsibility for the overall administration of the plant fire protection and prevention program to an assistant plant superintendent rather than the plant superintendent.

Reason/Justification for the Change

This change reflects a change in plant organization to standardize Browns Ferry Nuclear Plant organization with other TVA nuclear plants.

### SAFETY ANALYSIS

All changes in this submittal reflect in-house organizational changes arising from either the separation of TVA's Division of Power Production into the Division of Nuclear Power and the Division of Fossil and Hydro Power or the standardization of Browns Ferry organization with TVA's other nuclear plants. Based on this fact these changes will have no adverse effect on the nuclear or environmental safety of Browns Ferry Nuclear Plant