

December 15, 1988

Docket Nos. 50-259/260/296

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Mr. Oliver D. Kingsley, Jr.  
 Senior Vice President, Nuclear Power  
 Tennessee Valley Authority  
 6N 38A Lookout Place  
 1101 Market Street  
 Chattanooga, Tennessee 37402-2801

Dear Mr. Kingsley:

SUBJECT: REVISION TO TECHNICAL SPECIFICATION PERTAINING TO CORE SPRAY  
 OPERABILITY AND TABLES 3.2.A/3.2.B (TAC 00482, 00483, 00484)  
 (TS 260, 261-T)

The Commission has issued the enclosed Amendment Nos. 161, 158, and 132 to Facility Operating Licenses Nos. DPR-33, DPR-52 and DPR-68 for the Browns Ferry Nuclear Plant, Units 1, 2 and 3, respectively. These amendments are in response to your application dated October 14, 1988. The amendments modify the Limiting Condition for Operation (LCO) Section 3.5.A.5 which requires specific conditions to be met when work involving the reactor vessel is being performed. The amendments also temporarily modified Tables 3.2.A and 3.2.B to allow specific reactor low level instruments to be out-of-service during the time the Reactor Vessel Water Level modifications are being performed.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Bi-Weekly Federal Register Notice.

Sincerely,

Original Signed by  
 David H. Moran for

Suzanne Black, Assistant Director  
 for Projects  
 TVA Projects Division  
 Office of Special Projects

Enclosures:

1. Amendment No. 161 to License No. DPR-33
2. Amendment No. 158 to License No. DPR-52
3. Amendment No. 132 to License No. DPR-68
4. Safety Evaluation

*DFO*  
*1/1*

cc w/enclosures:

See next page

\*SEE PREVIOUS CONCURRENCE

OFC	:OSP:TVA/LA*	:OSP:TVA/PM*	:TVA:AD/TP*	:OGC*	:TVA:AA*	:	:
NAME	:MSimms	:GGears:as	:BDLiaw	:	:SBlack	:	:
DATE	:11/02/88	:11/07/88	:11/08/88	:11/15/88	:12/15/88	:	:

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*Ch 108*

Mr. Oliver D. Kingsley, Jr.

-2-

Browns Ferry Nuclear Plant

CC:

General Counsel  
Tennessee Valley Authority  
400 West Summit Hill Drive  
E11 B33  
Knoxville, Tennessee 37902

Regional Administrator, Region II  
U.S. Nuclear Regulatory Commission  
101 Marietta Street, N.W.  
Atlanta, Georgia 30323

Mr. R. L. Gridley  
Tennessee Valley Authority  
5N 157B Lookout Place  
Chattanooga, Tennessee 37402-2801

Resident Inspector/Browns Ferry NP  
U.S. Nuclear Regulatory Commission  
Route 12, Box 637  
Athens, Alabama 35611

Mr. C. Mason  
Tennessee Valley Authority  
Browns Ferry Nuclear Plant  
P.O. Box 2000  
Decatur, Alabama 35602

Dr. Henry Myers, Science Advisor  
Committee on Interior  
and Insular Affairs  
U. S. House of Representatives  
Washington, D.C. 20515

Mr. P. Carier  
Tennessee Valley Authority  
Browns Ferry Nuclear Plant  
P.O. Box 2000  
Decatur, Alabama 35602

Tennessee Valley Authority  
Rockville Office  
11921 Rockville Pike  
Suite 402  
Rockville, Maryland 20852

Mr. D. L. Williams  
Tennessee Valley Authority  
400 West Summit Hill Drive  
W10 B85  
Knoxville, Tennessee 37902

Chairman, Limestone County Commission  
P.O. Box 188  
Athens, Alabama 35611

Claude Earl Fox, M.D.  
State Health Officer  
State Department of Public Health  
State Office Building  
Montgomery, Alabama 36130



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

BROWNS FERRY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 161  
License No. DPR-33

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (the licensee) dated October 14, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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PDR ADDOCK 05000259  
PDC


2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-33 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 161, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Suzanne Black, Assistant Director  
for Projects  
TVA Projects Division  
Office of Special Projects

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: December 15, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 161

FACILITY OPERATING LICENSE NO. DPR-33

DOCKET NO. 50-259

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf pages\* are provided to maintain document completeness.

REMOVE

3.5/4.5-3  
3.5/4.5-4

INSERT

3.5/4.5-3  
3.5/4.5-4\*

### 3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

#### LIMITING CONDITIONS FOR OPERATION

#### SURVEILLANCE REQUIREMENTS

##### 3.5.A Core Spray System (CSS)

- \* 5. When irradiated fuel is in the reactor vessel and the reactor vessel head is removed, core spray is not required to be OPERABLE provided the cavity is flooded, the fuel pool gates are open and the fuel pool water level is maintained above the low level alarm point, and provided one RHRSW pump and associated valves supplying the standby coolant supply are OPERABLE.
  
- \* When work is in progress which has the potential to drain the vessel, manual initiation capability of either 1 CSS Loop or 1 RHR pump, with the capability of injecting water into the reactor vessel, and the associated diesel generator (s) are required.

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.B Residual Heat Removal System (RHRS) (LPCI and Containment Cooling)

1. The RHRS shall be OPERABLE:

- (1) PRIOR TO STARTUP from a COLD CONDITION; or
- (2) when there is irradiated fuel in the reactor vessel and when the reactor vessel pressure is greater than atmospheric, except as specified in Specifications 3.5.B.2, through 3.5.B.7.

2. With the reactor vessel pressure less than 105 psig, the RHRS may be removed from service (except that two RHR pumps-containment cooling mode and associated heat exchangers must remain OPERABLE) for a period not to exceed 24 hours while being drained of suppression chamber quality water and filled with primary coolant quality water provided that during cooldown two loops with one pump per loop or one loop with two pumps, and associated diesel generators, in the core spray system are OPERABLE.

4.5.B. Residual Heat Removal System (RHRS) (LPCI and Containment Cooling)

- 1. a. Simulated Automatic Actuation Test Once/ Operating Cycle
- b. Pump OPERABILITY Per Specification 1.0.MM
- c. Motor Operated valve OPERABILITY Per Specification 1.0.MM
- d. Pump Flow Rate Once/3 months
- e. Test Check Valve Per Specification 1.0.MM

Each LPCI pump shall deliver 9000 gpm against an indicated system pressure of 125 psig. Two LPCI pumps in the same loop shall deliver 12000 gpm against an indicated system pressure of 250 psig.

2. An air test on the drywell and torus headers and nozzles shall be conducted once/5 years. A water test may be performed on the torus header in lieu of the air test.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 158  
License No. DPR-52

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (the licensee) dated October 14, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.



2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.158 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Suzanne Black, Assistant Director  
for Projects  
TVA Projects Division  
Office of Special Projects

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: December 15, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 158

FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf pages\* are provided to maintain document completeness.

REMOVE

3.2/4.2-7  
3.2/4.2-8  
3.2/4.2-14  
3.2/4.2-15  
3.5/4.5-3  
3.5/4.5-4

INSERT

3.2/4.2-7  
3.2/4.2-8\*  
3.2/4.2-14  
3.2/4.2-15\*  
3.5/4.5-3  
3.5/4.5-4\*

TABLE 3.2.A  
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable Per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
* 2	Instrument Channel - Reactor Low Water Level(6) (LIS-3-203 A-D)	$\geq 538''$ above vessel zero	A or (B and E)	1. Below trip setting does the following: a. Initiates Reactor Building Isolation b. Initiates Primary Containment Isolation c. Initiates SGTS
1	Instrument Channel - Reactor High Pressure	$100 \pm 15$ psig	D	1. Above trip setting isolates the shutdown cooling suction valves of the RHR system.
2	Instrument Channel - Reactor Low Water Level (LIS-3-56A-D)	$\geq 378''$ above vessel zero	A	1. Below trip setting initiates Main Steam Line Isolation
2	Instrument Channel - High Drywell Pressure (6) (PIS-64-56A-D)	$\leq 2.5$ psig	A or (B and E)	1. Above trip setting does the following: a. Initiates Reactor Building Isolation b. Initiates Primary Containment Isolation c. Initiates SGTS
* 1	The automatic initiation capability of this instrument channel is not required to be OPERABLE while the Reactor Vessel water level monitoring modification is being performed. Manual initiation capability of the associated systems will be available during that time the automatic initiation logic is out-of-service.			

3.2/4.2-7

Amendment No. 153

TABLE 3.2.A (Continued)  
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable Per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
2	Instrument Channel - High Radiation Main Steam Line Tunnel (6)	$\leq$ 3 times normal rated full power background	B	1. Above trip setting initiates Main Steam Line Isolation
2	Instrument Channel - Low Pressure Main Steam Line (PIS-1-72, 76, 82, 86)	$\geq$ 825 psig (4)	B	1. Below trip setting initiates Main Steam Line Isolation
2(3)	Instrument Channel - High Flow Main Steam Line (PdIS-1-13A-D, 25A-D, 36A-D, 50A-D)	$\leq$ 140% of rated steam flow	B	1. Above trip setting initiates Main Steam Line Isolation
2(12)	Instrument Channel - Main Steam Line Tunnel High Temperature	$\leq$ 200°F	B	1. Above trip setting initiates Main Steam Line Isolation.
2(14)	Instrument Channel - Reactor Water Cleanup System Floor Drain High Temperature	160 - 180°F	C	1. Above trip setting initiates Isolation of Reactor Water Cleanup Line from Reactor and Reactor Water Return Line.
2	Instrument Channel - Reactor Water Cleanup System Space High Temperature	160 - 180°F	C	1. Same as above
1	Instrument Channel - Reactor Building Ventilation High Radiation - Reactor Zone	$\leq$ 100 mr/hr or downscale	G	1. 1 upscale or 2 downscale will a. Initiate SGTS b. Isolate reactor zone and refueling floor. c. Close atmosphere control system.

3.2/4.2-8

Amendment No. 156

BFN-Unit 2

TABLE 3.2.B  
INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Minimum No. Operable Per Trip Sys(1)	Function	Trip Level Setting	Action	Remarks
2	Instrument Channel - Reactor Low Water Level (LIS-3-58A-D)	≥ 470" above vessel zero.	A	1. Below trip setting initiated HPCI.
2	Instrument Channel - Reactor Low Water Level (LIS-3-58A-D)	≥ 470" above vessel zero.	A	1. Multiplier relays initiate RCIC.
*	Instrument Channel - Reactor Low Water Level (LIS-3-58A-D)	≥ 378" above vessel zero.	A	1. Below trip setting initiates CSS.  Multiplier relays initiate LPCI.  2. Multiplier relay from CSS initiates accident signal (15).
2(16)	Instrument Channel - Reactor Low Water Level (LIS-3-58A-D)	≥ 378" above vessel zero.	A	1. Below trip settings, in conjunction with drywell high pressure, low water level permissive, 120 sec. delay timer and CSS or RHR pump running, initiates ADS.
1(16)	Instrument Channel - Reactor Low Water Level Permissive (LIS-3-184, 185)	≥ 544" above vessel zero.	A	1. Below trip setting permissive for initiating signals on ADS.
1	Instrument Channel - Reactor Low Water Level (LIS-3-52 and 62)	≥ 312 5/16" above vessel zero. (2/3 core height)	A	1. Below trip setting prevents inadvertent operation of containment spray during accident condition.

\* The automatic initiation capability of this instrument channel is not required to be OPERABLE while the Reactor Vessel water level monitoring modification is being performed. Manual initiation capability of the associated system will be available during that time the automatic initiation logic is out-of-service.

BFN-Unit 2

3.2/4.2-14

Amendment No. 144, 153

TABLE 3.2.B (Continued)

Minimum No. Operable Per Trip Sys(1)	Function	Trip Level Setting	Action	Remarks
2	Instrument Channel - Drywell High Pressure (PIS-64-58 E-H)	$1 \leq p \leq 2.5$ psig	A	1. Below trip setting prevents inadvertent operation of containment spray during accident conditions.
2	Instrument Channel - Drywell High Pressure (PS-64-58 A-D)	$\leq 2.5$ psig	A	1. Above trip setting in conjunction with low reactor pressure initiates CSS. Multiplier relays initiate HPCI. 2. Multiplier relay from CSS initiates accident signal. (15)
2	Instrument Channel - Reactor Low Water Level (LIS-3-56A-D)	$\geq 470$ " above vessel zero	A	1. Below trip setting trips recirculation pumps.
2	Instrument Channel - Reactor High Pressure (PIS-3-204A-D)	$\leq 1120$ psig	A	1. Above trip setting trips recirculation pumps.
2	Instrument Channel - Drywell High Pressure (PIS-64-58A-D)	$\leq 2.5$ psig	A	1. Above trip setting in conjunction with low reactor pressure initiates LPCI.
2(16)	Instrument Channel - Drywell High Pressure (PIS-64-57A-D)	$\leq 2.5$ psig	A	1. Above trip setting, in conjunction with low reactor water level, drywell high pressure, 120 sec. delay timer and CSS or RHR pump running, initiates ADS.

3.2/4.2-15

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.A Core Spray System (CSS)

- \* 5. When irradiated fuel is in the reactor vessel and the reactor vessel head is removed, core spray is not required to be OPERABLE provided the cavity is flooded, the fuel pool gates are open and the fuel pool water level is maintained above the low level alarm point, and provided one RHRSW pump and associated valves supplying the standby coolant supply are OPERABLE.

- \* When work is in progress which has the potential to drain the vessel, manual initiation capability of either 1 CSS Loop or 1 RHR pump, with the capability of injecting water into the reactor vessel, and the associated diesel generator (s) are required.

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.B Residual Heat Removal System (RHRS) (LPCI and Containment Cooling)

1. The RHRS shall be OPERABLE:
  - (1) PRIOR TO STARTUP from a COLD CONDITION; or
  - (2) when there is irradiated fuel in the reactor vessel and when the reactor vessel pressure is greater than atmospheric, except as specified in Specifications 3.5.B.2, through 3.5.B.7.
  
2. With the reactor vessel pressure less than 105 psig, the RHR may be removed from service (except that two RHR pumps—containment cooling mode and associated heat exchangers must remain OPERABLE) for a period not to exceed 24 hours while being drained of suppression chamber quality water and filled with primary coolant quality water provided that during cooldown two loops with one pump per loop or one loop with two pumps, and associated diesel generators, in the core spray system are OPERABLE.

4.5.B. Residual Heat Removal System (RHRS) (LPCI and Containment Cooling)

1. a. Simulated Automatic Actuation Test Once/Operating Cycle
- b. Pump OPERABILITY Per Specification 1.0.MM
- c. Motor Operated valve OPERABILITY Per Specification 1.0.MM
- d. Pump Flow Rate Once/3 months
- e. Test Check Valve Per Specification 1.0.MM

Each LPCI pump shall deliver 9000 gpm against an indicated system pressure of 125 psig. Two LPCI pumps in the same loop shall deliver 12,000 gpm against an indicated system pressure of 250 psig.

2. An air test on the drywell and torus headers and nozzles shall be conducted once/5 years. A water test may be performed on the torus header in lieu of the air test.





UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 132  
License No. DPR-68

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (the licensee) dated October 14, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-68 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 132, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Suzanne Black, Assistant Director  
for Projects  
TVA Projects Division  
Office of Special Projects

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: December 15, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 132

FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf pages\* are provided to maintain document completeness.

REMOVE

3.5/4.5-3  
3.5/4.5-4

INSERT

3.5/4.5-3  
3.5/4.5-4\*

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.A Core Spray System (CSS)

- \* 5. When irradiated fuel is in the reactor vessel and the reactor vessel head is removed, core spray is not required to be OPERABLE provided the cavity is flooded, the fuel pool gates are open and the fuel pool water level is maintained above the low level alarm point, and provided one RHRSW pump and associated valves supplying the standby coolant supply are OPERABLE.

- \* When work is in progress which has the potential to drain the vessel, manual initiation capability of either 1 CSS Loop or 1 RHR pump, with the capability of injecting water into the reactor vessel, and the associated diesel generator (s) are required.

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

3.5.B Residual Heat Removal System (RHRS) (LPCI and Containment Cooling)

1. The RHRS shall be OPERABLE:

- (1) PRIOR TO STARTUP from a COLD CONDITION; or
- (2) when there is irradiated fuel in the reactor vessel and when the reactor vessel pressure is greater than atmospheric, except as specified in Specifications 3.5.B.2, through 3.5.B.7.

2. With the reactor vessel pressure less than 105 psig, the RHR may be removed from service (except that two RHR pumps-containment cooling mode and associated heat exchangers must remain OPERABLE) for a period not to exceed 24 hours while being drained of suppression chamber quality water and filled with primary coolant quality water provided that during cooldown two loops with one pump per loop or one loop with two pumps, and associated diesel generators, in the core spray system are OPERABLE.

SURVEILLANCE REQUIREMENTS

4.5.B. Residual Heat Removal System (RHRS) (LPCI and Containment Cooling)

- 1. a. Simulated Automatic Actuation Test Once/Operating Cycle
- b. Pump OPERABILITY Per Specification 1.0.MM
- c. Motor Operated valve OPERABILITY Per Specification 1.0.MM
- d. Pump Flow Rate Once/3 months
- e. Test Check Valve Per Specification 1.0.MM

Each LPCI pump shall deliver 9000 gpm against an indicated system pressure of 125 psig. Two LPCI pumps in the same loop shall deliver 12000 gpm against an indicated system pressure of 250 psig.

2. An air test on the drywell and torus headers and nozzles shall be conducted once/5 years. A water test may be performed on the torus header in lieu of the air test.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

SUPPORTING AMENDMENT NO. 161 TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 158 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 132 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2 AND 3

DOCKET NOS. 50-259, 50-260 AND 50-296

1.0 INTRODUCTION

By letter dated October 14, 1988, Tennessee Valley Authority (the licensee) requested an amendment to Facility Operating License Nos. DPR-33, DPR-52 and DPR-68 for the Browns Ferry Nuclear (BFN) Plant, Units 1, 2 and 3. The proposed amendment would change the Technical Specification (TS) to support the licensee's modification for relocating the Reactor Vessel Level Monitoring Systems (RVLMS) sensing lines at BFN, Unit 2 in accordance with the licensee's response to Generic Letter 84-23.

In accordance with NUREG-0737, Item II.F.2, the licensee was required to install instrumentation for detection of inadequate core cooling. In order to comply with this requirement, the licensee installed the RVLMS which is relied upon for controlling feedwater, actuating emergency systems and for providing the operators information used as a basis for actions to assure adequate core cooling. Subsequent to the installation of the RVLMS, the staff identified in Generic Letter 84-23 concerns with the redundancy and reliability of water level instrumentation to detect inadequate core cooling. Specifically, the staff was concerned with high drywell temperature effects (nonconservative errors in water level indication) upon fluid to the reference columns during accident or degraded transients events. In evaluating this concern, the licensee, in accordance with Generic Letter 84-23, committed (by letter dated September 25, 1987) to reroute the reactor vessel reference legs to reduce the vertical drop, inside the drywell, to less than two feet.

The change supports the licensee's RVLMS modification in conjunction with fuel handling activities at BFN, Unit 2. The RVLMS modification will remove several instruments from service, some of which provide automatic initiation logic to systems that are required to be operable during fuel handling activities. Since the RVLMS modification is work which has the potential to drain the reactor, TS 3.5.A.5 requires the Core Spray System (CSS) and low pressure coolant injection system to be operable when loading fuel into the vessel. However, these systems would not meet the definition of operable since their automatic initiation capability would be out of service during the

RVLMS modification. The licensee has requested the following changes to support the RVLMS modification in conjunction with fuel handling activities:

1. TS 3.5.A.5 would be modified to allow work in progress which has the potential to drain the vessel provided that manual initiation capability of either one Core Spray System (CSS) loop or one Residual Heat Removal (RHR) pump and its associated diesel generator is available.
2. TS Table 3.2.A and Table 3.2.B would be modified to allow the automatic capability of the instrument channel to be inoperable during the period that the RVLMS modification is being performed provided that manual initiation of the associated systems is available.

## 2.0. EVALUATION

1. The licensee has provided a proposed change to modify TS 3.5.A.5 to state that when irradiated fuel is in the reactor vessel and the reactor vessel head is removed, the CSS is not required to be operable provided that the cavity is flooded, the fuel pool gates are open and the fuel pool water level is maintained above the low level alarm point, and provided that one RHR pump and associated valves supplying the standby coolant supply are operable. The proposed changes eliminate the statement "provided work is not in progress which has the potential to drain the vessel." This in effect would not require the CSS to be operable provided that remaining conditions are satisfied. The staff finds that the licensee's proposed change is consistent with that which is allowed by the Standard Technical Specification (NUREG-0123, Standard Technical Specification for General Electric Boiling Water Reactor). The specific conditions listed in the Limiting Condition for Operation would provide assurance that the plant would be in a safe condition when TS 3.5.A.5 is applicable, in that by having the spent fuel gates open to the cavity assures adequate water supply in the event a leak occurred that would have the potential of draining the reactor vessel.

The licensee has also provided a proposed change to add a footnote \* to TS 3.5.A.5 that provides additional requirements for the Emergency Core Cooling Systems (ECCS) when work is in progress which has the potential to drain the reactor vessel. The requirements specify that the manual initiation of either one CSS loop or one RHR pump must be available and capable of injecting water into the reactor vessel. With the fuel load gate open, the spent fuel pool has a low level indicator which alarms in the control room. The licensee has stated that alarm response procedures will instruct the operators to determine the leak source, add water from the condensate head tank, and add water from other sources if required. By maintaining the requirement of having one RHR pump operable ensures an additional source of water supply to the spent fuel pool. Based upon the discussion above, the staff finds the proposed changes to TS 3.5.A.5 acceptable.

2. The licensee has provided a proposed change to modify Table 3.2.A to allow the automatic capability of the instrument channels to be inoperable during the period that the RVLMS modification is being performed provided that manual initiation of the system is available. The Reactor Building Isolation and Standby Gas Treatment System (SGTS) is initiated by LIS-3-203 A-D when the reactor vessel water level drops to a level of 538" above vessel zero. The Reactor Building Isolation prevents the release of untreated radioactive gases from the reactor building. The SGTS treats these gases for an elevated release through the plant stack.

The licensee has stated that the fuel pool gate will be open during the implementation of the RVLMS modification and thus a reactor vessel draining event would annunciate in the control room via the spent fuel pool low level alarm. The licensee has also stated that the SGTS and Reactor Building Isolation will be manually initiated via administrative controls upon an annunciation at the low fuel pool water level alarm. By this action, the licensee has manually initiated the Reactor Building Isolation and SGTS before the reactor vessel water level drops to that point that automatic initiation would have occurred. Nevertheless, in the event that the operator fails to identify or terminate a draining event, the TS continues to require the Reactor Building Ventilation High Radiation Instrumentation. This instrumentation still automatically initiates the SGTS and isolates the reactor zone and refuel floor thereby limiting the release of radioactive gases to an acceptable level. Based upon the licensee's actions and administrative controls to manually initiate the required systems prior to the automatic initiation level and the redundancy in safety systems to automatically initiate the SGTS upon high radioactive level, the staff finds the proposed changes to Table 3.2.A acceptable.

The licensee has provided a proposed change to modify Table 3.2.B to allow the automatic capability of the instrument channels to be inoperable during the period that the RVLMS modification is being performed provided that manual initiation of the system is available. The ECCS are initiated by LIS-3-58 A-D when the reactor vessel water level drops to a level of 378" above vessel zero. As discussed above, the ECCS are not required to be operable provided the remaining conditions are satisfied. By requiring the manual initiation capability of the CSS and one RHR pump and associated valves supplying the standby coolant supply, two independent and redundant systems will be available as makeup to the reactor vessel and spent fuel pool. As such, the staff finds the proposed change to Table 3.2.B to be acceptable.

### 3.0 ENVIRONMENTAL CONSIDERATION

The amendments involve a change to a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative



occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of these amendments.

#### 4.0 CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (53 FR 43495) on October 27, 1988 and consulted with the State of Alabama. No public comments were received and the State of Alabama did not have any comments.

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: Gerald E. Gears

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