

April 5, 1985

Docket Nos. 50-259/260/296

Mr. Hugh G. Parris  
Manager of Power  
Tennessee Valley Authority  
500A Chestnut Street, Tower II  
Chattanooga, Tennessee 37401

Dear Mr. Parris:

The Commission has issued the enclosed Amendment Nos. 116, 111 and 86 to Facility Operating License Nos. DPR-33, DPR-52 and DPR-68 for the Browns Ferry Nuclear Plant, Units 1, 2 and 3. These amendments are in response to your application dated October 19, 1984 (TVA BFNP TS 202).

The amendments change the Technical Specifications to permit removal of the secondary containment static pressure limiting system.

A copy of the Safety Evaluation is also enclosed.

Sincerely,

Original signed by  
Richard J. Clark

Richard J. Clark, Project Manager  
Operating Reactors Branch #2  
Division of Licensing

Enclosures:

1. Amendment No. 116 to License No. DPR-33
2. Amendment No. 111 to License No. DPR-52
3. Amendment No. 86 to License No. DPR-68
4. Safety Evaluation

cc w/enclosures:  
See next page

DISTRIBUTION  
Docket File  
NRC PDR  
Local PDR  
ORB#2 Reading  
HThompson

JPartlow  
SNorris  
RClark  
WLong  
OELD  
LJHarmon

Feltawila  
ELJordan  
BGrimes  
TBarnhart (12)  
WJones  
EButcher

ACRS (10)  
OPA, CMiles  
RDiggs  
Gray File  
Extra - 5

DL:ORB#2  
SNorris:ajs  
03/19/85

DL:ORB#2  
WLong WL  
03/20/85

DL:ORB#2  
RClark  
03/22/85

DL:ORB#2  
DVassallo  
03/24/85

OELD  
G.S. Johnson  
03/27/85  
M. Clayton  
used

DL:AD-OR  
GLafnas  
03/27/85

Mr. Hugh G. Parris  
Tennessee Valley Authority  
Browns Ferry Nuclear Plant, Units 1, 2 and 3

cc:

H. S. Sanger, Jr., Esquire  
General Counsel  
Tennessee Valley Authority  
400 Commerce Avenue  
E 11B 330  
Knoxville, Tennessee 37902

James A. Coffey  
Site Director, BFNP  
Tennessee Valley Authority  
Post Office Box 2000  
Decatur, Alabama 35602

Mr. Ron Rogers  
Tennessee Valley Authority  
400 Chestnut Street, Tower II  
Chattanooga, Tennessee 37401

Resident Inspector  
U. S. Nuclear Regulatory Commission  
Route 2, Box 311  
Athens, Alabama 35611

Mr. Charles R. Christopher  
Chairman, Limestone County Commission  
Post Office Box 188  
Athens, Alabama 35611

Mr. Donald L. Williams, Jr.  
Tennessee Valley Authority  
400 West Summit Hill Drive, W10B85  
Knoxville, Tennessee 37902

Ira L. Meyers, M.D.  
State Health Officer  
State Department of Public Health  
State Office Building  
Montgomery, Alabama 36130

George Jones, Manager, BFNP  
Tennessee Valley Authority  
Post Office Box 2000  
Decatur, Alabama 35602

Mr. H. N. Culver  
249A HBD  
400 Commerce Avenue  
Tennessee Valley Authority  
Knoxville, Tennessee 37902

Mr. Oliver Havens  
U. S. Nuclear Regulatory Commission  
Reactor Training Center  
Osborne Office Center, Suite 200  
Chattanooga, Tennessee 37411

J. Nelson Grace  
Regional Administrator  
Region II Office  
U. S. Nuclear Regulatory Commission  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303



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. 116  
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 19, 1984, 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-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. 116, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

8504250037 850405  
PDR ADOCK 05000259  
P PDR

3. This license amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*for Robert A. Deanna*  
Domenic B. Vassallo, Chief  
Operating Reactors Branch #2  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: April 5, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 116

FACILITY OPERATING LICENSE NO. DPR-33

DOCKET NO. 50-259

Revise Appendix A as follows:

1. Remove the following pages and replace with identically numbered pages.

57, 58, 59, 60, 61, 86, 88, 109

2. The marginal lines on these pages denote the area being changed.

TABLE 3.2.A  
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable per Trip Sys(1)(1)	Function	Trip Level Setting	Action (1)	Remarks
1	Reactor Building Isolation Timer (refueling floor)	$0 \leq t \leq 2$ secs.	H or F	1. Below trip setting prevents spurious trips and system pertur- bations from initiating isolation
1	Reactor Building Isolation Timer (reactor zone)	$0 \leq t \leq 2$ secs.	G or A or H	1. Below trip setting prevents spurious trips and system pertur- bations from initiating isolation
2 (10)	Group 1 (Initiating) Logic	N/A	A	1. Refer to Table 3.7.A for list of valves.
1	Group 1 (Actuation) Logic	N/A	B	1. Refer to Table 3.7.A for list of valves.

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	Group 2 (Initiating) Logic	N/A	A or (B and E)	1. Refer to Table 3.7.A for list of valves.
1	Group 2 (RHR Isolation- Actuation) Logic	N/A	D	
1	Group 8 (Tip-Actuation) Logic	N/A	J	
1	Group 2 (Drywell Sump Drains-Actuation) Logic	N/A	K	
1	Group 2 (Reactor Building & Refueling Floor, and Dry- well Vent and Purge- Actuation) Logic	N/A	F and G	1. Part of Group 6 Logic.
2	Group 3 (Initiating) Logic	N/A	C	1. Refer to Table 3.7.A for list of valves.
1	Group 3 (Actuation) Logic	N/A	C	
1	Group 6 Logic	N/A	F and G	1. Refer to Table 3.7.A for list of valves.
1	Group 8 (Initiating) Logic	N/A	J	1. Refer to Table 3.7.A for list of valves. 2. Same as Group 2 initiating logic.
1	Reactor Building Isolation (refueling floor) Logic	N/A	H or F	
1	Reactor Building Isolation (reactor zone) Logic	N/A	H or G or A	

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
1(7) (8)	SGTS Train A Logic	N/A	L or (A and F)	
1(7) (8)	SGTS Train B Logic	N/A	L or (A and F)	
1(7) (8)	SGTS Train C Logic	N/A	L or (A and F)	

Refer to Table 3.2.B for RCIC and HPCI functions including Groups 4, 5, and 7 valves.

NOTES FOR TABLE 3.2.A

1. Whenever the respective functions are required to be operable, there shall be two operable or tripped trip systems for each function.

If the first column cannot be met for one of the trip systems, that trip system or logic for that function shall be tripped (or the appropriate action listed below shall be taken). If the column cannot be met for all trip systems, the appropriate action listed below shall be taken.

- A. Initiate an orderly shutdown and have the reactors in Cold Shutdown Condition in 24 hours.
- B. Initiate an orderly load reduction and have Main Steam Lines isolated within eight hours.
- C. Isolate Reactor Water Cleanup System.
- D. Isolate Shutdown Cooling
- E. Initiate primary containment isolation within 24 hours.
- F. The handling of spent fuel will be prohibited and all operations over spent fuels and open reactor wells shall be prohibited.
- G. Isolate the reactor building and start the standby gas treatment system.
- H. Immediately perform a logic system functional test on the logic in the other trip systems and daily thereafter not to exceed 7 days.

I. DELETE

J. Withdraw TIP.

K. Manually isolate the affected lines. Refer to section 4.2.E for the requirements of an inoperable system.

L. If one SGTS train is inoperable take actions H or action A and F. If two SGTS trains are inoperable take actions A and F.

2. When it is determined that a channel is failed in the unsafe condition, the other channels that monitor the same variable shall be functionally tested immediately before the trip system or logic for that function is tripped. The trip system or the logic for that function may remain untripped for short periods of time to allow functional testing of the other trip system or logic for that function.
3. There are four SENSORS per steam line of which two must be operable.
4. Only required in Run Mode (interlocked with Mode Switch).
5. Not required in Run Mode (bypassed by mode switch).

6. Channel shared by RPS and Primary Containment & Reactor Vessel Isolation Control System. A channel failure may be a channel failure in each system.
7. A train is considered a trip system.
8. Two out of three SGTS trains required. A failure of more than one will require action A and F.
9. (Deleted)
10. Refer to Table 3.7.A and its notes for a listing of Isolation Valve Groups and their initiating signals.
11. A channel may be placed in an inoperable status for up to four hours for required surveillance without placing the trip system in the tripped condition provided at least one OPERABLE channel in the same trip system is monitoring that parameter.
12. A channel contains four sensors, all of which must be operable for the channel to be operable.

Power operations permitted for up to 30 days with 15 of the 16 temperature switches operable.

In the event that normal ventilation is unavailable in the main steam line tunnel, the high temperature channels may be bypassed for a period of not to exceed four hours. During periods when normal ventilation is not available, such as during the performance of secondary containment leak rate tests, the control room indicators of the affected space temperatures shall be monitored for indications of small steam leaks. In the event of rapid increases in temperature (indicative of steam line break), the operator shall promptly close the main steam line isolation valves.

13. The nominal setpoints for alarm and reactor trip (1.5 and 3.0 times background, respectively) are established based on the normal background at full power. The allowable setpoints for alarm and reactor trip are 1.2-1.8 and 2.4-3.6 times background, respectively.

TABLE 4.2.A  
SURVEILLANCE REQUIREMENTS FOR PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

<u>Function</u>	<u>Functional Test</u>	<u>Calibration Frequency</u>	<u>Instrument Check</u>
Instrument Channel - Reactor Building Ventilation High Radiation - Refueling Zone	(1) (14) (22)	once/3 months	once/day (8)
Instrument Channel - SGTS Train A Heaters	(4)	(9)	N/A
Instrument Channel - SGTS Train B Heaters	(4)	(9)	N/A
Instrument Channel - SGTS Train C Heaters	(4)	(9)	N/A
Reactor Building Isolation Timer (refueling floor)	(4)	once/operating cycle	N/A
Reactor Building Isolation Timer (reactor zone)	(4)	once/operating cycle	N/A

TABLE 4.2.A  
SURVEILLANCE REQUIREMENTS FOR PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

<u>Function</u>	<u>Functional Test</u>	<u>Calibration Frequency</u>	<u>Instrument Check</u>
Group 6 Logic	once/operating cycle (18)	N/A	N/A
Group 8 (Initiating) Logic	Checked during channel functional test. No further test required.	N/A	N/A
Reactor Building Isolation (refueling floor) Logic	once/6 months (18)	(6)	N/A
Reactor Building Isolation (reactor zone) Logic	once/6 months (18)	(6)	N/A
SGTS Train A Logic	once/6 months (19)	N/A	N/A
SGTS Train B Logic	once/6 months (19)	N/A	N/A
SGTS Train C Logic	once/6 months (19)	N/A	N/A
Instrument Channel - Reactor Cleanup System Floor Drain High Temperature	(1)	once/operating cycle	N/A
Instrument Channel - Reactor Cleanup System Space High Temperature (23)			
a. RTD	once/operating cycle	{ (once/operating cycle) }	N/A
b. Temperature Switch	(1)	{ (once/operating cycle) }	N/A

NOTES FOR TABLES 4.2.A THROUGH 4.2.H

1. Functional tests shall be performed once per month.
2. Functional tests shall be performed before each startup with a required frequency not to exceed once per week.
3. This instrumentation is excepted from the functional test definition. The functional test will consist of injecting a simulated electrical signal into the measurement channel.
4. Tested during logic system functional tests.
5. Refer to Table 4.1.B.
6. The logic system functional tests shall include a calibration once per operating cycle of time delay relays and timers necessary for proper functioning of the trip systems.
7. The functional test will consist of verifying continuity across the inhibit with a volt-ohmmeter.
8. Instrument checks shall be performed in accordance with the definition of Instrument Check (see Section 1.0, Definitions). An instrument check is not applicable to a particular setpoint, such as Upscale, but is a qualitative check that the instrument is behaving and/or indicating in an acceptable manner for the particular plant condition. Instrument check is included in this table for convenience and to indicate that an Instrument Check will be performed on the instrument. Instrument checks are not required when these instruments are not required to be operable or are tripped.
9. Calibration frequency shall be once/year.
10. DELETE
11. Portion of the logic is functionally tested during outage only.
12. The detector will be inserted during each operating cycle and the proper amount of travel into the core verified.
13. Functional test will consist of applying simulated inputs (see note 3). Local alarm lights representing upscale and downscale trips will be verified, but no rod block will be produced at this time. The inoperative trip will be initiated to produce a rod block (SRM and IRM inoperative also bypassed with the mode switch in RUN). The functions that cannot be verified to produce a rod block directly will be verified during the operating cycle.



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. 111  
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 19, 1984, 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. 111, 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 the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*for Robert A. Humen*  
Domenic B. Vassallo, Chief  
Operating Reactors Branch #2  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: April 5, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 111

FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Revise Appendix A as follows:

1. Remove the following pages and replace with identically numbered pages.

57, 58, 59, 60, 61, 86, 88, 109

2. The marginal lines on these pages denote the area being changed.

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
1	Reactor Building Isolation Timer (refueling floor)	$0 \leq t \leq 2$ secs.	H or F	1. Below trip setting prevents spurious trips and system pertur- bations from initiating isolation
1	Reactor Building Isolation Timer (reactor zone)	$0 \leq t \leq 2$ secs.	G or A or H	1. Below trip setting prevents spurious trips and system pertur- bations from initiating isolation
2 (10)	Group 1 (Initiating) Logic	N/A	A	1. Refer to Table 3.7.A for list of valves.
1	Group 1 (Actuation) Logic	N/A	B	1. Refer to Table 3.7.A for list of valves.

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	Group 2 (Initiating) Logic	N/A	A or (B and E)	1. Refer to Table 3.7.A for list of valves.
1	Group 2 (RHR Isolation- Actuation) Logic	N/A	D	
1	Group 8 (Tip-Actuation) Logic	N/A	J	
1	Group 2 (Drywell Sump Drains-Actuation) Logic	N/A	K	
1	Group 2 (Reactor Building & Refueling Floor, and Dry- well Vent and Purge- Actuation) Logic	N/A	F and G	1. Part of Group 6 Logic.
2	Group 3 (Initiating) Logic	N/A	C	1. Refer to Table 3.7.A for list of valves.
1	Group 3 (Actuation) Logic	N/A	C	
1	Group 6 Logic	N/A	F and G	1. Refer to Table 3.7.A for list of valves.
1	Group 8 (Initiating) Logic	N/A	J	1. Refer to Table 3.7.A for list of valves. 2. Same as Group 2 initiating logic.
1	Reactor Building Isolation (refueling floor) Logic	N/A	H or F	
1	Reactor Building Isolation (reactor zone) Logic	N/A	H or G or A	

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
1(7) (8)	SGTS Train A Logic	N/A	L or (A and F)	
1(7) (9)	SGTS Train B Logic	N/A	L or (A and F)	
1(7) (8)	SGTS Train C Logic	N/A	L or (A and F)	

Refer to Table 3.2.B for RCIC and HPCI functions including Groups 4, 5, and 7 valves.

NOTES FOR TABLE 3.2.A

1. Whenever the respective functions are required to be operable, there shall be two operable or tripped trip systems for each function.

If the first column cannot be met for one of the trip systems, that trip system or logic for that function shall be tripped (or the appropriate action listed below shall be taken). If the column cannot be met for all trip systems, the appropriate action listed below shall be taken.

- A. Initiate an orderly shutdown and have the reactors in Cold Shutdown Condition in 24 hours.
  - B. Initiate an orderly load reduction and have Main Steam Lines isolated within eight hours.
  - C. Isolate Reactor Water Cleanup System.
  - D. Isolate Shutdown Cooling
  - E. Initiate primary containment isolation within 24 hours.
  - F. The handling of spent fuel will be prohibited and all operations over spent fuels and open reactor wells shall be prohibited.
  - G. Isolate the reactor building and start the standby gas treatment system.
  - H. Immediately perform a logic system functional test on the logic in the other trip systems and daily thereafter not to exceed 7 days.
- I. DELETE
  - J. Withdraw TIP.
  - K. Manually isolate the affected lines. Refer to section 4.2.E for the requirements of an inoperable system.
  - L. If one SCIS train is inoperable take actions H or action A and F. If two SCIS trains are inoperable take actions A and F.
2. When it is determined that a channel is failed in the unsafe condition, the other channels that monitor the same variable shall be functionally tested immediately before the trip system or logic for that function is tripped. The trip system or the logic for that function may remain untripped for short periods of time to allow functional testing of the other trip system or logic for that function.
  3. There are four sensors per steam line of which two must be operable.
  4. Only required in Run Mode (interlocked with Mode Switch).
  5. Not required in Run Mode (bypassed by mode switch).

6. Channel shared by RPS and Primary Containment & Reactor Vessel Isolation Control System. A channel failure may be a channel failure in each system.
7. A train is considered a trip system.
8. Two out of three SGTS trains required. A failure of more than one will require action A and F.
9. (Deleted)
10. Refer to Table 3.7.A and its notes for a listing of Isolation Valve Groups and their initiating signals.
11. A channel may be placed in an inoperable status for up to four hours for required surveillance without placing the trip system in the tripped condition provided at least one OPERABLE channel in the same trip system is monitoring that parameter.
12. A channel contains four sensors, all of which must be operable for the channel to be operable.

Power operations permitted for up to 30 days with 15 of the 16 temperature switches operable.

In the event that normal ventilation is unavailable in the main steam line tunnel, the high temperature channels may be bypassed for a period of not to exceed four hours. During periods when normal ventilation is not available, such as during the performance of secondary containment leak rate tests, the control room indicators of the affected space temperatures shall be monitored for indications of small steam leaks. In the event of rapid increases in temperature (indicative of steam line break), the operator shall promptly close the main steam line isolation valves.

13. The nominal setpoints for alarm and reactor trip (1.5 and 3.0 times background, respectively) are established based on the normal background at full power. The allowable setpoints for alarm and reactor trip are 1.2-1.8 and 2.4-3.6 times background, respectively.

TABLE 4.2.A  
 SURVEILLANCE REQUIREMENTS FOR PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

<u>Function</u>	<u>Functional Test</u>	<u>Calibration Frequency</u>	<u>Instrument Check</u>
Instrument Channel - Reactor Building Ventilation High Radiation - Refueling Zone	(1) (14) (22)	once/3 months	once/day (8)
Instrument Channel - SGTS Train A Heaters	(4)	(9)	N/A
Instrument Channel - SGTS Train B Heaters	(4)	(9)	N/A
Instrument Channel - SGTS Train C Heaters	(4)	(9)	N/A
Reactor Building Isolation Timer (refueling floor)	(4)	once/operating cycle	N/A
Reactor Building Isolation Timer (reactor zone)	(4)	once/operating cycle	N/A

TABLE 4.2.A  
 SUPVEILLANCE REQUIREMENTS FOR PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

<u>Function</u>	<u>Functional Test</u>	<u>Calibration Frequency</u>	<u>Instrument Check</u>
Group 6 Logic	once/operating cycle (18)	N/A	N/A
Group 8 (Initiating) Logic	Checked during channel functional test. No further test required.	N/A	N/A
Reactor Building Isolation (refueling floor) Logic	once/6 months (18)	(6)	N/A
Reactor Building Isolation (reactor zone) Logic	once/6 months (18)	(6)	N/A
SGTS Train A Logic	once/6 months (19)	N/A	N/A
SGTS Train B Logic	once/6 months (19)	N/A	N/A
SGTS Train C Logic	once/6 months (19)	N/A	N/A
Instrument Channel - Reactor Cleanup System Floor Drain High Temperature	(1)	once/operating cycle	N/A
Instrument Channel - Reactor Cleanup System Space High Temperature (23)			
a. RTD	once/operating cycle	( (once/operating cycle) )	N/A
b. Temperature Switch	(1)	( (once/operating cycle) )	N/A

NOTES FOR TABLES 4.2.A THROUGH 4.2.H

1. Functional tests shall be performed once per month.
2. Functional tests shall be performed before each startup with a required frequency not to exceed once per week.
3. This instrumentation is excepted from the functional test definition. The functional test will consist of injecting a simulated electrical signal into the measurement channel.
4. Tested during logic system functional tests.
5. Refer to Table 4.1.B.
6. The logic system functional tests shall include a calibration once per operating cycle of time delay relays and timers necessary for proper functioning of the trip systems.
7. The functional test will consist of verifying continuity across the inhibit with a volt-ohmmeter.
8. Instrument checks shall be performed in accordance with the definition of Instrument Check (see Section 1.0, Definitions). An instrument check is not applicable to a particular setpoint, such as Upscale, but is a qualitative check that the instrument is behaving and/or indicating in an acceptable manner for the particular plant condition. Instrument check is included in this table for convenience and to indicate that an Instrument Check will be performed on the instrument. Instrument checks are not required when these instruments are not required to be operable or are tripped.
9. Calibration frequency shall be once/year.
10. DELETE
11. Portion of the logic is functionally tested during outage only.
12. The detector will be inserted during each operating cycle and the proper amount of travel into the core verified.
13. Functional test will consist of applying simulated inputs (see note 3). Local alarm lights representing upscale and downscale trips will be verified, but no rod block will be produced at this time. The inoperative trip will be initiated to produce a rod block (SRM and IRM inoperative also bypassed with the mode switch in RUN). The functions that cannot be verified to produce a rod block directly will be verified during the operating cycle.



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. 86  
License No. DPR-68

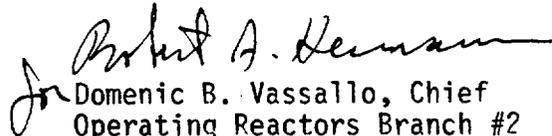
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (the licensee) dated October 19, 1984, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules 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. 86, 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 the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Domenic B. Vassallo, Chief  
Operating Reactors Branch #2  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: April 5, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 86

FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

Revise Appendix A as follows:

1. Remove the following pages and replace with identically numbered pages.

59, 60, 61, 62, 63, 89, 91, 106

2. The marginal lines on these pages denote the area being changed.

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
1	Reactor Building Isolation Timer (refueling floor)	$0 \leq t \leq 2$ secs.	H or F	1. Below trip setting prevents spurious trips and system pertur- bations from initiating isolation
1	Reactor Building Isolation Timer (reactor zone)	$0 \leq t \leq 2$ secs.	G or A or H	1. Below trip setting prevents spurious trips and system pertur- bations from initiating isolation
2 (10)	Group 1 (Initiating) Logic	N/A	A	1. Refer to Table 3.7.A for list of valves.
1	Group 1 (Actuation) Logic	N/A	B	1. Refer to Table 3.7.A for list of valves.

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	Group 2 (Initiating) Logic	N/A	A or (B and E)	1. Refer to Table 3.7.A for list of valves.
1	Group 2 (RHR Isolation- Actuation) Logic	N/A	D	
1	Group 8 (Tip-Actuation) Logic	N/A	J	
1	Group 2 (Drywell Sump Drains-Actuation) Logic	N/A	K	
1	Group 2 (Reactor Building & Refueling Floor, and Dry- well Vent and Purge- Actuation) Logic	N/A	F and G	1. Part of Group 6 Logic.
2	Group 3 (Initiating) Logic	N/A	C	1. Refer to Table 3.7.A for list of valves.
1	Group 3 (Actuation) Logic	N/A	C	
1	Group 6 Logic	N/A	F and G	1. Refer to Table 3.7.A for list of valves.
1	Group 8 (Initiating) Logic	N/A	J	1. Refer to Table 3.7.A for list of valves. 2. Same as Group 2 initiating logic.
1	Reactor Building Isolation (refueling floor) Logic	N/A	H or F	
1	Reactor Building Isolation (reactor zone) Logic	N/A	H or G OR A	

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
1(7) (8)	SGTS Train A Logic	N/A	L or (A and F)	
1(7) (8)	SGTS Train B Logic	N/A	L or (A and F)	
1(7) (8)	SGTS Train C Logic	N/A	L or (A and F)	

Refer to Table 3.2.B for RCIC and HPCI functions including Groups 4, 5, and 7 valves.

NOTES FOR TABLE 3.2.A

1. Whenever the respective functions are required to be operable, there shall be two operable or tripped trip systems for each function.

If the first column cannot be met for one of the trip systems, that trip system or logic for that function shall be tripped (or the appropriate action listed below shall be taken). If the column cannot be met for all trip systems, the appropriate action listed below shall be taken.

- A. Initiate an orderly shutdown and have the reactor in Cold Shutdown Condition in 24 hours.
  - B. Initiate an orderly load reduction and have Main Steam Lines isolated within eight hours.
  - C. Isolate Reactor Water Cleanup System.
  - D. Isolate Shutdown Cooling.
  - E. Initiate primary containment isolation within 24 hours.
  - F. The handling of spent fuel will be prohibited and all operations over spent fuels and open reactor wells shall be prohibited.
  - G. Isolate the reactor building and start the standby gas treatment system.
  - H. Immediately perform a logic system functional test on the logic in the other trip systems and daily thereafter not to exceed 7 days.
  - I. DELETE
  - J. Withdraw TIP.
  - K. Manually isolate the affected lines. Refer to section 4.2.E for the requirements of an inoperable system.
  - L. If one SGTS train is inoperable take actions H or action A and F. If two SGTS trains are inoperable take actions A and F.
2. When it is determined that a channel is failed in the unsafe condition, the other channels that monitor the same variable shall be functionally tested immediately before the trip system or logic for that function is tripped. The trip system or the logic for that function may remain untripped for short periods of time to allow functional testing of the other trip system or logic for that function.

3. There are four channels per steam line of which two must be operable.
4. Only required in Run Mode (interlocked with Mode Switch).
5. Not required in Run Mode (bypassed by Mode Switch).
6. Channel shared by RPS and Primary Containment & Reactor Vessel Isolation Control System. A channel failure may be a channel failure in each system.
7. A train is considered a trip system.
8. Two out of three SGTS trains required. A failure of more than one will require actions A and F.
9. (Deleted)
10. Refer to Table 3.7.A and its notes for a listing of Isolation Valve Groups and their initiating signals.
11. A channel may be placed in an inoperable status for up to four hours for required surveillance/maintenance without placing the trip system in the tripped condition provided at least one OPERABLE channel in the same trip system is monitoring that parameter.
12. A channel contains four sensors, all of which must be operable for the channel to be operable.

Power operations permitted for up to 30 days with 15 of the 16 temperature switches operable.

In the event that normal ventilation is unavailable in the main steam line tunnel, the high temperature channels may be bypassed for a period of not to exceed four hours. During periods when normal ventilation is not available, such as during the performance of secondary containment leak rate tests, the control room indicators of the affected space temperatures shall be monitored for indications of small steam leaks. In the event of rapid increases in temperature (indicative of steam line break), the operator shall promptly close the main steam line isolation valves.

13. The nominal setpoints for alarm and reactor trip (1.5 and 3.0 times background, respectively) are established based on the normal background at full power. The allowable setpoints for alarm and reactor trip are 1.2-1.8 and 2.4-3.6 times background, respectively.

TABLE 4.2.A  
SURVEILLANCE REQUIREMENTS FOR PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

<u>Function</u>	<u>Functional Test</u>	<u>Calibration Frequency</u>	<u>Instrument Check</u>
Instrument Channel - Reactor Building Ventilation High Radiation - Refueling Zone	(1) (10) (22)	once/3 months	once/day (8)
Instrument Channel - SGTS Train A Heaters	(4)	(9)	N/A
Instrument Channel - SGTS Train B Heaters	(4)	(9)	N/A
Instrument Channel - SGTS Train C Heaters	(4)	(9)	N/A
Reactor Building Isolation Timer (refueling floor)	(4)	once/operating cycle	N/A
Reactor Building Isolation Timer (reactor zone)	(4)	once/operating cycle	N/A

TABLE 4.2.A  
SURVEILLANCE REQUIREMENTS FOR PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

<u>Function</u>	<u>Functional Test</u>	<u>Calibration Frequency</u>	<u>Instrument Check</u>
Group 6 Logic	once/operating cycle (18)	N/A	N/A
Group 8 (Initiating) Logic	Checked during channel functional test. No further test required.	N/A	N/A
Reactor Building Isolation (refueling floor) Logic	once/6 months (18)	(6)	N/A
Reactor Building Isolation (reactor zone) Logic	once/6 months (18)	(6)	N/A
SGTS Train A Logic	once/6 months (19)	N/A	N/A
SGTS Train B Logic	once/6 months (19)	N/A	N/A
SGTS Train C Logic	once/6 months (19)	N/A	N/A
Instrument Channel - Reactor Cleanup System Floor Drain High Temperature	(1)	once/operating cycle	N/A
Instrument Channel - Reactor Cleanup System Space High Temperature (23)			
a. RTD	once/operating cycle	(once/operating cycle)	N/A
b. Temperature Switch	(1)	(once/operating cycle)	

NOTES FOR TABLES 4.2.A THROUGH 4.2.H

1. Functional tests shall be performed once per month.
2. Functional tests shall be performed before each startup with a required frequency not to exceed once per week.
3. This instrumentation is excepted from the functional test definition. The functional test will consist of injecting a simulated electrical signal into the measurement channel.
4. Tested during logic system functional tests.
5. Refer to Table 4.1.B.
6. The logic system functional tests shall include a calibration once per operating cycle of time delay relays and timers necessary for proper functioning of the trip systems.
7. The functional test will consist of verifying continuity across the inhibit with a volt-ohmmeter.
8. Instrument checks shall be performed in accordance with the definition of Instrument Check (see section 1.0, Definitions). An instrument check is not applicable to a particular setpoint, such as Upscale, but is a qualitative check that the instrument is behaving and/or indicating in an acceptable manner for the particular plant condition. Instrument check is included in this table for convenience and to indicate that an Instrument Check will be performed on the instrument. Instrument checks are not required when these instruments are not required to be operable or are tripped.
9. Calibration frequency shall be once/year.
10. DELETE
11. Portion of the logic is functionally tested during outage only.
12. The detector will be inserted during each operating cycle and the proper amount of travel into the core verified.
13. Functional test will consist of applying simulated inputs (see note 3). Local alarm lights representing upscale and downscale trips will be verified, but no rod block will be produced at this time. The inoperative trip will be initiated to produce a rod block (SRM and IRM inoperative also bypassed with the mode switch in RUN). The functions that cannot be verified to produce a rod block directly will be verified during the operating cycle.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 116 TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 111 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 86 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 19, 1984 the Tennessee Valley Authority (the licensee/TVA) requested amendments to Facility Operating License Nos. DPR-33, DPR-52 and DPR-68 for the Browns Ferry Nuclear Plant, Units 1, 2 and 3. The amendments would delete operability and surveillance requirements for the secondary containment static pressure limiting system. As stated in Final Safety Analysis Report (FSAR) Section 5.3.3.7, the function of the system is to prevent the standby gas treatment system (SGTS) blowers, which have an excess capacity, from creating a large negative pressure in the building and causing difficulty in the opening of doors. The system is in the Technical Specifications because malfunction could cause loss of secondary containment integrity.

2.0 Evaluation

The static pressure limiting system is a subsystem of the standby gas treatment system. According to design calculations, using the standby gas treatment system to exhaust less than four reactor building zones will result in an exhaust rate greater than the infiltration rate. The secondary containment wall area for an individually isolated zone is less than that of the total reactor building, which results in proportionally smaller leakage rates. Consequently, negative pressure within any zone during single zone isolation operation could be much greater than 0.25 inch of water gauge, creating a problem with door operation. The static pressure limiting system bleeds outside air into each zone of the reactor building through vacuum relief lines to prevent outside pressure exceeding the pressure inside the building by more than 0.50 inch water gauge. Each reactor zone is provided with a separate independent vacuum relief line and the refueling zone is provided with two separate vacuum relief lines. The vacuum relief lines are located on the ventilation air supply duct downstream of the containment isolation valves. Each vacuum relief line contains two electrically operated, low-leakage dampers mounted in series. One of the dampers has two positions while the other is the modulating type. Upon zone isolation the two-position damper is automatically

8504250043 850405  
PDR ADOCK 05000259  
P PDR

opened. The other damper modulates automatically to limit the pressure difference between the reactor building and the outside to not exceed 0.50 inch water gauge and is of a fails-as-is design.

The licensee proposes to permanently block-off the vacuum relief lines. This will ensure that secondary containment integrity is not threatened by leakage through these lines in the event of system failure. The licensee further states that operating experience has shown that the static pressure limiting system is not needed to limit building negative pressure as originally predicted.

Based on our evaluation of the information presented by the licensee, we find that the static pressure limiting system is not needed to limit building negative pressure and that elimination of the static pressure limiting system will not threaten the integrity of the secondary containment. We, therefore, conclude that the proposed change to the Technical Specifications is acceptable.

### 3.0 Environmental Considerations

The amendments involve a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and in a surveillance requirement. 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 the 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 or environmental assessment need be prepared in connection with the issuance of the amendments.

### 4.0 Conclusion

We have 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 these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: W. Long, F. Eltawila

Dated: April 5, 1985