



LICENSE AUTHORITY FILE COPY  
UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

DO NOT REMOVE

September 19, 1984

Docket Nos. 50-259/260/296

Posted  
Ammt. 107  
to DPR-52

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. 113, 107 and 81 to Facility Operating License Nos. DPR-33, DPR-52 and DPR-68 for the Browns Ferry Nuclear Plant, Unit Nos. 1, 2 and 3. These amendments are in response to your application dated July 16, 1982 (TVA BFNP TS 175).

The amendments change the Technical Specifications to (1) remove a requirement to perturb the reactor vessel water level as part of the monthly functional test for water level instruments, (2) clarify monitoring requirements for relief valve bellows, and (3) eliminate references to diesel generators required for the Standby Gas Treatment System and Control Room Emergency Ventilation System operability. Your requests relating to neutron flux wires and to the Charpy V Transition Temperature vs. Neutron Exposure Figure included in your July 16, 1982 submittal were superseded by later amendment requests and will be the subject of separate amendments.

A copy of the Safety Evaluation is also enclosed.

Sincerely,

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

Enclosures:

1. Amendment No. 113 to License No. DPR-33
2. Amendment No. 107 to License No. DPR-52
3. Amendment No. 81 to License No. DPR-68
4. Safety Evaluation

cc w/enclosures:  
See next page

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

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

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

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

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

James P. O'Reilly  
Regional Administrator  
Region II Office  
U. S. Nuclear Regulatory Commission  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

U. S. Environmental Protection  
Agency  
Region IV Office  
Regional Radiation Representative  
345 Courtland Street, N. W.  
Atlanta, Georgia 30308

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

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

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

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

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



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. 113  
License No. DPR-33

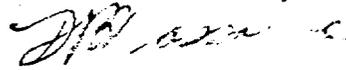
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (the licensee) dated July 16, 1982, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules 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. 113, 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: September 19, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 113

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.

37, 39, 181, 236, 244

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

**TABLE A-1**  
**REACTOR PROTECTION SYSTEM (SCRAM) DOCUMENTATION FUNCTIONAL TESTS**  
**MINIMUM FUNCTIONAL TEST FREQUENCIES FOR SAFETY INSTR. AND CONTROL CIRCUITS**

	<u>Group (2)</u>	<u>Functional Test</u>	<u>Minimum Frequency (3)</u>
Mode Switch in Shutdown	A	Place Mode Switch in Shutdown	Each Refueling Outage
Manual Scram	A	Trip Channel and Alarm	Every 3 Months
IRH			
High Flux	C	Trip Channel and Alarm (4)	Once Per Week During Refueling and Before Each Startup
Inoperative	C	Trip Channel and Alarm (4)	Once Per Week During Refueling and Before Each Startup
APRM			
High Flux (15% scram)	C	Trip Output Relays (4)	Before Each Startup and Weekly When Required to be Operable
High Flux (Flow Biased)	B	Trip Output Relays (4)	Once/Week
High Flux (Fixed Trip)	B	Trip Output Relays (4)	Once/Week
Inoperative	B	Trip Output Relays (4)	Once/Week
Downscale	B	Trip Output Relays (4)	Once/Week
Flow Bias	B	(6)	(6)
High Reactor Pressure	A	Trip Channel and Alarm	Once/Month (1)
High Drywell Pressure	A	Trip Channel and Alarm	Once/Month (1)
Reactor Low Water Level	A	Trip Channel and Alarm	Once/Month (1)
High Water Level in Scram Discharge Tank			
Float Switches (LS-85-45C-F)	A	Trip Channel and Alarm	Once/Month
High Water Level in Scram Discharge Tank			
Electronic Level Switches (LS-85-45A, B, G, H)	B	Trip Channel and Alarm (7)	Once/Month
Turbine Condenser Flow Vacuum	A	Trip Channel and Alarm	Once/Month (1)
Main Steam Line High Radiation	B	Trip Channel and Alarm (4)	Once/3 Months (8)

NOTES FOR TABLE 4.1.A

1. Initially the minimum frequency for the indicated tests shall be once per month.
2. A description of the three groups is included in the Bases of this specification.
3. Functional tests are not required when the systems are not required to be operable or are operating (i.e., already tripped). If tests are missed, they shall be performed prior to returning the systems to an operable status.
4. This instrumentation is exempted from the instrument channel test definition. This instrument channel functional test will consist of injecting a simulated electrical signal into the measurement channels.
5. (deleted)
6. The functional test of the flow bias network is performed in accordance with Table 4.2.C.
7. Functional test consists of the injection of a simulated signal into the electronic trip circuitry in place of the sensor signal to verify operability of the trip end alarm functions.
8. The functional test frequency decreased to once/3 months to reduce challenges to relief valves per NUREG 0737, Item II.K.3.16.

3.6.C Coolant Leakage

2. Both the sump and air sampling systems shall be operable during reactor power operation. From and after the date that one of these systems is made or found to be inoperable for any reason, reactor power operation is permissible only during the succeeding 72 hours.

The air sampling system may be removed from service for a period of 4 hours for calibration, function testing, and maintenance without providing a temporary monitor.

3. If the condition in 1 or 2 above cannot be met, an orderly shutdown shall be initiated and the reactor shall be shutdown in the Cold Condition within 24 hours.

D. Relief Valves

1. When more than one relief valves are known to be failed, an orderly shutdown shall be initiated and the reactor depressurized to less than 105 psig within 24 hours.

E. Jet Pumps

1. Whenever the reactor is in the startup or run modes, all jet pumps shall be operable. If it is determined that a jet pump is inoperable, or if two or more jet pump flow instrument failures occur and cannot be corrected within 12 hours, an orderly shutdown shall be initiated and the reactor shall be shutdown in the Cold Condition within 24 hours.

4.6.C Coolant LeakageD. Relief Valves

1. Approximately one-half of all relief valves shall be bench-checked or replaced with a bench-checked valve each operating cycle. All 13 valves will have been checked or replaced upon the completion of every second cycle.
2. Once during each operating cycle, each relief valve shall be manually opened until thermocouples and acoustic monitors downstream of the valve indicate steam is flowing from the valve.
3. The integrity of the relief valve bellows shall be continuously monitored when valves incorporating the bellows design are installed.
4. At least one relief valve shall be disassembled and inspected each operating cycle.

E. Jet Pumps

1. Whenever there is recirculation flow with the reactor in the startup or run modes with both recirculation pumps running, jet pump operability shall be checked daily by verifying that the following conditions do not occur simultaneously:
  - a. The two recirculation loops have a flow imbalance of 15% or more when the pumps are operated at the same speed.

3.7 CONTAINMENT SYSTEMSB. Standby Gas Treatment System

1. Except as specified in Specification 3.7.B.3 below, all three trains of the standby gas treatment system

shall be operable at all times when secondary containment integrity is required.

4.7 CONTAINMENT SYSTEMSB. Standby Gas Treatment System

1. At least once per year, the following conditions shall be demonstrated.
  - a. Pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches of water at a flow of 9000 cfm ( $\pm$  10%).
  - b. The inlet heaters on each circuit are tested in accordance with ANSI N510-1975 and are capable of an output of at least 40 kW.
  - c. Air distribution is uniform within 20% across HEPA filters and charcoal adsorbers.

7 CONTAINMENT SYSTEMSE. Control Room Emergency Ventilation

1. Except as specified in specification 3.7.E.3 below, both control room emergency pressurization systems shall be operable at all times when any reactor vessel contains irradiated fuel.
2. a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show  $\geq 99\%$  DOP removal and  $\geq 99\%$  halogenated hydrocarbon removal when tested in accordance with ANSI N510-1975.
- b. The results of laboratory carbon sample analysis shall show  $\geq 90\%$  radioactive methyl iodide removal at a velocity when tested in accordance with ANSI N510-1975 (130°C, 95% R.H.).

4.7 CONTAINMENT SYSTEMSE. Control Room Emergency Ventilation

1. At least once per operating cycle, not to exceed 18 months, the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to be less than 6 inches of water at system design flow rate ( $\pm 10\%$ ).
2. a. The tests and sample analysis of Specification 3.7.E.2 shall be performed at least once per operating cycle or once every 18 months, whichever occurs first for standby service or after every 720 hours of system operation and following significant painting, fire or chemical release in any ventilation zone communicating with the system.
- b. Cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing.



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. 107  
License No. DPR-52

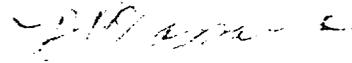
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (the licensee) dated July 16, 1982, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules 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. 107, 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 in Technical  
Specifications

Date of Issuance: September 19, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 107

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.

37, 39, 181, 236, 244

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

**TABLE 4.1.A**  
**REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION FUNCTIONAL TESTS**  
**MINIMUM FUNCTIONAL TEST FREQUENCIES FOR SAFETY INSTR. AND CONTROL CIRCUITS**

	<u>Group (2)</u>	<u>Functional Test</u>	<u>Minimum Frequency (3)</u>
Mode Switch in Shutdown	A	Place Mode Switch in Shutdown	Each Refueling Outage
Manual Scram	A	Trip Channel and Alarm	Every 3 Months
IRH			
High Flux	C	Trip Channel and Alarm (4)	Once Per Week During Refueling and Before Each Startup
Inoperative	C	Trip Channel and Alarm (4)	Once Per Week During Refueling and Before Each Startup
AFRH			
51 High Flux (LSX scram)	C	Trip Output Relays (4)	Before Each Startup and Weekly When Required to be Operable
High Flux (Flow Biased)	B	Trip Output Relays (4)	Once/Week
High Flux (Fixed Trip)	B	Trip Output Relays (4)	Once/Week
Inoperative	B	Trip Output Relays (4)	Once/Week
Downscale	B	Trip Output Relays (4)	Once/Week
Flow Bias	B	(6)	(6)
High Reactor Pressure	A	Trip Channel and Alarm	Once/Month (1)
High Drywell Pressure	A	Trip Channel and Alarm	Once/Month (1)
Reactor Low Water Level	A	Trip Channel and Alarm	Once/Month (1)
High Water Level in Scram Discharge Tank			
Float Switches	A	Trip Channel and Alarm	Once/month
Differential Pressure Switches	B	Trip Channel and Alarm	Once/month (7)
Turbine Condenser Low Vacuum	A	Trip Channel and Alarm	Once/month (1)
Main Steam Line High Radiation	B	Trip Channel and Alarm	Once/3 Months (8)

NOTES FOR TABLE 4.1.A

1. Initially the minimum frequency for the indicated tests shall be once per month.
2. A description of the three groups is included in the Bases of this specification.
3. Functional tests are not required when the systems are not required to be operable or are operating (i.e., already tripped). If tests are missed, they shall be performed prior to returning the systems to an operable status.
4. This instrumentation is exempted from the instrument channel test definition. This instrument channel functional test will consist of injecting a simulated electrical signal into the measurement channels.
5. Deleted
6. The functional test of the flow bias network is performed in accordance with Table 4.2.C.
7. Calibration of master/slave trip-units only.
8. The functional test frequency decreased to once/3 months to reduce challenges to relief valves per NUREG 0737, Item II.K.3.16.

3.5.C Coolant Leakage

2. Both the sump and air sampling systems shall be operable during reactor power operation. From and after the date that one of these systems is made or found to be inoperable for any reason, reactor power operation is permissible only during the succeeding 72 hours.

The air sampling system may be removed from service for a period of 4 hours for calibration, function testing, and maintenance without providing a temporary monitor.

3. If the condition in 1 or 2 above cannot be met, an orderly shutdown shall be initiated and the reactor shall be shut-down in the Cold Condition within 24 hours.

D. Relief Valves

1. When more than one relief valves are known to be failed, an orderly shutdown shall be initiated and the reactor depressurized to less than 105 psig within 24 hours.

E. Jet Pumps

1. Whenever the reactor is in the startup or run modes, all jet pumps shall be operable. If it is determined that a jet pump is inoperable, or if two or more jet pump flow instrument failures occur and cannot be corrected within 12 hours, an orderly shutdown shall be initiated and the reactor shall be shutdown in the Cold Condition within 24 hours.

4.6.C Coolant LeakageD. Relief Valves

1. Approximately one-half of all relief valves shall be bench-checked or replaced with a bench-checked valve each operating cycle. All 13 valves will have been checked or replaced upon the completion of every second cycle.
2. Once during each operating cycle, each relief valve shall be manually opened until thermocouples and acoustic monitors downstream of the valve indicate steam is flowing from the valve.
3. The integrity of the relief valve bellows shall be continuously monitored when valves incorporating the bellows design are installed.
4. At least one relief valve shall be disassembled and inspected each operating cycle.

E. Jet Pumps

1. Whenever there is recirculation flow with the reactor in the startup or run modes with both recirculation pumps running, jet pump operability shall be checked daily by verifying that the following conditions do not occur simultaneously:
  - a. The two recirculation loops have a flow imbalance of 15% or more when the pumps are operated at the same speed.

**3.7 CONTAINMENT SYSTEMS****B. Standby Gas Treatment System**

1. Except as specified in Specification 3.7.B.3 below, all three trains of the standby gas treatment system

shall be operable at all times when secondary containment integrity is required.

**4.7 CONTAINMENT SYSTEMS****B. Standby Gas Treatment System**

1. At least once per year, the following conditions shall be demonstrated.
  - a. Pressure drop across the combined HEPA filters and charcoal adsorber tanks is less than 6 inches of water at a flow of 9000 cfm ( $\pm$  10%).
  - b. The inlet heaters on each circuit are tested in accordance with ANSI NS10-1975 and are capable of an output of at least 40 kW.
  - c. Air distribution is uniform within 20% across HEPA filters and charcoal adsorbers.

.7 CONTAINMENT SYSTEMSE. Control Room Emergency Ventilation

1. Except as specified in specification 3.7.E.3 below, both control room emergency pressurization systems

shall be operable at all times when any reactor vessel contains irradiated fuel.

2. a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show ≥99% DOP removal and ≥99% halogenated hydrocarbon removal when tested in accordance with ANSI N510-1975.
- b. The results of laboratory carbon sample analysis shall show ≥90% radioactive methyl iodide removal at a velocity when tested in accordance with ANSI N510-1975 (130°C, 95% R.H.).

4.7 CONTAINMENT SYSTEMSE. Control Room Emergency Ventilation

1. At least once per operating cycle, not to exceed 18 months, the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to be less than 6 inches of water at system design flow rate (+ 10%).
2. a. The tests and sample analysis of Specification 3.7.E.2 shall be performed at least once per operating cycle or once every 18 months, whichever occurs first for standby service or after every 720 hours of system operation and following significant painting, fire or chemical release in any ventilation zone communicating with the system.
- b. Cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing.



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. 81  
License No. DPR-68

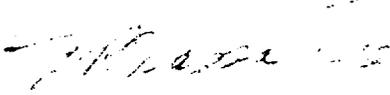
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (the licensee) dated July 16, 1982, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules 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. 81, 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: September 19, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 81

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.  
36, 38, 192, 247, 256
2. The marginal lines on these pages denote the area being changed.

**TABLE 9.1.A  
REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION FUNCTIONAL TESTS  
MINIMUM FUNCTIONAL TEST FREQUENCIES FOR SAFETY INSTR. AND CONTROL CIRCUITS**

	<u>Group (2)</u>	<u>Functional Test</u>	<u>Minimum Frequency (1)</u>
Mode Switch in Shutdown	A	Place Mode Switch in Shutdown	Each Refueling Outage
Manual Scram	A	Trip Channel and Alarm	Every 3 Months
<b>IBH</b>			
High Flux	C	Trip Channel and Alarm (4)	Once Per Week During Refueling and Before Each Startup
Inoperative	C	Trip Channel and Alarm (4)	Once Per Week During Refueling and Before Each Startup
<b>AFPM</b>			
High Flux (15% scram)	C	Trip Output Relays (4)	Before Each Startup and Weekly When Required to be Operable
High Flux (Flow Biased)	B	Trip Output Relays (4)	Once/Week
High Flux (Fixed Trip)	B	Trip Output Relays (4)	Once/Week
<b>26</b> Inoperative	B	Trip Output Relays (4)	Once/Week
Downscale	B	Trip Output Relays (4)	Once/Week
Flow Bias	B	(6)	(6)
High Reactor Pressure	A	Trip Channel and Alarm	Once/Month (1)
High Drywell Pressure	A	Trip Channel and Alarm	Once/Month (1)
Reactor Low Water Level	A	Trip Channel and Alarm	Once/Month (1)
High Water Level in Scram Discharge Tank			
Float Switches (LS-85-45C-F)	A	Trip Channel and Alarm	Once/Month
Electronic Level Switches (LS-85-45A, B, G, H)	B	Trip Channel and Alarm (7)	Once/Month
Turbine Condenser Low Vacuum	A	Trip Channel and Alarm	Once/Month (1)

NOTES FOR TABLE 4.1.A

1. Initially the minimum frequency for the indicated tests shall be once per month.
2. A description of the three groups is included in the Bases of this specification.
3. Functional tests are not required when the systems are not required to be operable or are operating (i.e., already tripped). If tests are missed, they shall be performed prior to returning the systems to an operable status.
4. This instrumentation is exempted from the instrument channel test definition. This instrument channel functional test will consist of injecting a simulated electrical signal into the measurement channels.
5. (deleted)
6. The functional test of the flow bias network is performed in accordance with Table 4.2.C.
7. Functional test consists of the injection of a simulated signal into the electronic trip circuitry in place of the sensor signal to verify operability of the trip and alarm functions.
8. Functional test frequency decreased to once/ 3 months to reduce the challenges to relief valves per NUREG 0737, Item II.K.3.16.

3.6 PRIMARY SYSTEM BOUNDARY

2. Both the sump and air sampling systems shall be operable during reactor power operation. From and after the date that one of these systems is made or found to be inoperable for any reason, reactor power operation is permissible only during the succeeding 72 hours.

The air sampling system may be removed from service for a period of 4 hours for calibration, functional testing, and maintenance without providing a temporary monitor.

3. If the condition in 1 or 2 above cannot be met, an orderly shutdown shall be initiated and the reactor shall be shutdown in the Cold Condition within 24 hours.

D. Relief Valves

1. When more than one relief valve is known to be failed, an orderly shutdown shall be initiated and the reactor depressurized to less than 105 psia within 24 hours.

4.6 PRIMARY SYSTEM BOUNDARYD. Relief Valves

1. Approximately one-half of all relief valves shall be bench-checked or replaced with a bench-checked valve each operating cycle. All 13 valves will have been checked or replaced upon the completion of every second cycle.

2. Once during each operating cycle, each relief valve shall be manually opened until thermocouples and acoustic monitors downstream of the valve indicate steam is flowing from the valve.

3. The integrity of the relief valve bellows shall be continuously monitored when valves incorporating the bellows design are installed.

4. At least one relief valve shall be disassembled and inspected each operating cycle.

**3.7 CONTAINMENT SYSTEMS****B. Standby Gas Treatment System**

1. Except as specified in Specification 3.7.B.3 below, all three trains of the standby gas treatment system

shall be operable at all times when secondary containment integrity is required.

**4.7 CONTAINMENT SYSTEMS****B. Standby Gas Treatment System**

1. At least once per year, the following conditions shall be demonstrated.
  - a. Pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches of water at a flow of 9000 cfm ( $\pm$  10%).
  - b. The inlet heaters on each circuit are tested in accordance with ANSI N510-1975 and are capable of an output of at least 40 kW.
  - c. Air distribution is uniform within 20% across HEPA filters and charcoal adsorbers.

3.7 CONTAINMENT SYSTEMSE. Control Room Emergency Ventilation

1. Except as specified in specification 3.7.E.3 below, both control room emergency pressurization systems
 

shall be operable at all times when any reactor vessel contains irradiated fuel.
2. a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show ≥99% DOP removal and ≥99% halogenated hydrocarbon removal when tested in accordance with ANSI N510-1975.
- b. The results of laboratory carbon sample analysis shall show ≥90% radioactive methyl iodide removal at a velocity when tested in accordance with ANSI N510-1975 (130°C, 95% R.H.).

4.7 CONTAINMENT SYSTEMSE. Control Room Emergency Ventilation

1. At least once per operating cycle, not to exceed 18 months, the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to be less than 6 inches of water at system design flow rate (+ 10%).
2. a. The tests and sample analysis of Specification 3.7.E.2 shall be performed at least once per operating cycle or once every 18 months, whichever occurs first for standby service or after every 720 hours of system operation and following significant painting, fire or chemical release in any ventilation zone communicating with the system.
- b. Cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 113 TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 107 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 81 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 July 16, 1982 (TS 175) the Tennessee Valley Authority (the licensee or 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 requested amendments would change the Appendix A Technical Specifications to (A) remove a requirement to perturb the reactor water level and monitor the water level indication responses as part of the monthly functional test for water level scram instrumentation, (B) update requirements concerning neutron fluence wires, (C) clarify relief valve bellows monitoring requirements, (D) delete the Charpy V Transition Temperature figure, (E) revise the Bases for determining RTNDT and (F) remove references to diesel generators from the Standby Gas Treatment System and Control Room Emergency Ventilation System limiting conditions for operation (LCOs).

Items B, D and E are not included in this amendment. Those items were superseded by your requests dated September 23, 1982 and July 21, 1983 (TS-178) and September 22, 1983 (TS-191) which will be the subject of future amendments.

2.0 EVALUATION

Perturbation of Reactor Water Level

After performing the monthly functional test of the reactor water level instrumentation at Browns Ferry, the current requirement is to perturb the water in the reactor vessel and monitor the water level indicator changes. The water level instrumentation is taken out of service during this test and put back after its completion. We have evaluated the licensee's request of removing the requirement of perturbing the reactor vessel water level after the functional test and have found no existing requirement in BWR Standard Technical Specifications which require it. Moreover, after the level instrument is put back into service, it is compared with the numerous other water level instruments for verification.

Based on our review of the licensee's submittal, we conclude that it does not introduce a significant safety consideration and is therefore acceptable.

### Relief Valve Bellows Monitoring

The Technical Specifications presently require that the integrity of relief valve bellows be continuously monitored. However, all bellows type relief and safety valves have been changed out to non-bellows type valves. The requirement is, therefore, no longer necessary unless a bellows type valve is reinstalled. The licensee's request to revise the specification to require monitoring of relief valves bellows only when valves incorporating the bellows design are installed is acceptable.

### Standby Gas Treatment System (SGTS) and Control Room Emergency Ventilation System (CREVS) Operability

The limiting conditions for operation for the SGTS and CREVS specifically require that the associated diesel generator be operable in order for the system to be considered operable. As a result of amendments issued February 6, 1981 which placed such requirements in the Definitions section, it is now redundant to specifically require diesel generator operability as part of a system LCO. The licensee's request to delete the references to diesel generators in the SGTS and CREVS LCOs is acceptable.

## 3.0 ENVIRONMENTAL CONSIDERATIONS

The amendments involve changes in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and in 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 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: K. Desai, W. Long

Dated: September 19, 1984