

February 12, 1988

Dockets Nos. 50-259/260/296

Mr. S. A. White  
Manager of Nuclear Power  
Tennessee Valley Authority  
6N 38A Lookout Place  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

Dear Mr. White:

SUBJECT: TECHNICAL SPECIFICATIONS CHANGE RELATED TO GENERIC LETTER 84-09  
HYDROGEN RECOMBINER CAPABILITY (TAC R00098/R00099/R00100) (TS 233)

Re: Browns Ferry Nuclear Plant, Units 1, 2, and 3

The Commission has issued the enclosed Amendments Nos. 142, 138, and 113 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 June 4, 1987.

These amendments impose a limit on reactor operation when nitrogen is not being used to supply the pneumatic control system inside containment. The amendments also delete an obsolete reference to the fire-related startup retesting program.

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:

Gary G. Zech, Assistant Director  
for Projects  
TVA Projects Division  
Office of Special Projects

8802240116 880212  
PDR ADDOCK 05000259  
P PDR

Enclosures:

1. Amendment No. 142 to License No. DPR-33
2. Amendment No. 138 to License No. DPR-52
3. Amendment No. 113 to License No. DPR-68
4. Safety Evaluation

cc w/enclosures:  
See next page

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2/14/88



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

February 12, 1988

Dockets Nos. 50-259/260/296

Mr. S. A. White  
Manager of Nuclear Power  
Tennessee Valley Authority  
6N 38A Lookout Place  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

Dear Mr. White:

SUBJECT: TECHNICAL SPECIFICATIONS CHANGE RELATED TO GENERIC LETTER 84-09  
HYDROGEN RECOMBINER CAPABILITY (TAC R00098/R00099/R00100) (TS 233)

Re: Browns Ferry Nuclear Plant, Units 1, 2, and 3

The Commission has issued the enclosed Amendments Nos. 142, 138, and 113 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 June 4, 1987.

These amendments impose a limit on reactor operation when nitrogen is not being used to supply the pneumatic control system inside containment. The amendments also delete an obsolete reference to the fire-related startup retesting program.

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,

A handwritten signature in cursive script, appearing to read "Gary G. Zech".

Gary G. Zech, Assistant Director  
for Projects  
TVA Projects Division  
Office of Special Projects

Enclosures:

1. Amendment No. 142 to License No. DPR-33
2. Amendment No. 138 to License No. DPR-52
3. Amendment No. 113 to License No. DPR-68
4. Safety Evaluation

cc w/enclosures:  
See next page

Mr. S. A. White  
Tennessee Valley Authority

Browns Ferry Nuclear Plant  
Units 1, 2, and 3

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

Mr. Richard King  
c/o U.S. GAO  
1111 North Shore Drive  
Suite 225, Box 194  
Knoxville, Tennessee 37919

Mr. M. J. May  
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. 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. 142  
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 June 4, 1987, 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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P PDR

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. 142, 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



Gary G. Zech, Assistant Director  
for Projects  
TVA Projects Division  
Office of Special Projects

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: February 12, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 142

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

3.7/4.7-9

3.7/4.7-10

3.7/4.7-11

3.7/4.7-12

INSERT

3.7/4.7-9\*

3.7/4.7-10

3.7/4.7-11

3.7/4.7-12\*

4.7.A. Primary Containment

4.7.A.2. (Cont'd)

j. Continuous Leak Rate Monitor

When the primary containment is inerted the containment shall be continuously monitored for gross leakage by review of the inerting system makeup requirements. This monitoring system may be taken out of service for maintenance but shall be returned to service as soon as practicable.

k. Drywell and Torus Surfaces

The interior surfaces of the drywell and torus above the level one foot below the normal water line and outside surfaces of the torus below the water line shall be visually inspected each operating cycle for deterioration and any signs of structural damage with particular attention to piping connections and supports and for signs of distress or displacement.

### 3.7/4.7 CONTAINMENT SYSTEMS

#### LIMITING CONDITIONS FOR OPERATION

##### 3.7.A PRIMARY CONTAINMENT

3. Pressure Suppression Chamber - Reactor Building Vacuum Breakers
  - a. Except as specified in 3.7.A.3.b below, two pressure suppression chamber-reactor building vacuum breakers shall be OPERABLE at all times when primary containment integrity is required. The setpoint of the differential pressure instrumentation which actuates the pressure suppression chamber-reactor building vacuum breakers shall be 0.5 psid.
  - b. From and after the date that one of the pressure suppression chamber-reactor building vacuum breakers is made or found to be INOPERABLE for any reason, reactor operation is permissible only during the succeeding seven days, provided that the repair procedure does not violate primary containment integrity.
4. Drywell-Pressure Suppression Chamber Vacuum Breakers
  - a. When primary containment is required, all drywell-suppression chamber vacuum breakers shall be OPERABLE and positioned in the fully closed position (except during testing) except as specified in 3.7.A.4.b and 3.7.A.4.c., below.
  - b. One drywell-suppression chamber vacuum breaker may be nonfully closed so long as it is determined to be not more than 3° open as indicated by the position lights.

#### SURVEILLANCE REQUIREMENTS

##### 4.7.A PRIMARY CONTAINMENT

3. Pressure Suppression Chamber- Reactor Building Vacuum Breakers
  - a. The pressure suppression chamber-reactor building vacuum breakers shall be exercised and the associated instrumentation including setpoint shall be functionally tested for proper operation each three months.
  - b. A visual examination and determination that the force required to open each vacuum breaker (check valve) does not exceed 0.5 psid will be made each refueling outage.
4. Drywell-Pressure Suppression Chamber Vacuum Breakers
  - a. Each drywell-suppression chamber vacuum breaker shall be exercised through an opening-closing cycle every month.
  - b. When it is determined that two vacuum breakers are INOPERABLE for opening at a time when operability is required, all other vacuum breaker valves shall be exercised immediately and every 15 days thereafter until the INOPERABLE valve has been returned to normal service.

LIMITING CONDITIONS FOR OPERATION3.7.A Primary Containment

## 3.7.A.4 (Cont'd)

- c. Two drywell-suppression chamber vacuum breakers may be determined to be INOPERABLE for opening.
- d. If Specifications 3.7.A.4.a, 3.7.A.4.b, or 3.7.A.4.c. cannot be met, the unit shall be placed in a Cold Shutdown condition in an orderly manner within 24 hours.

5. Oxygen Concentration

- a. Containment atmosphere shall be reduced to less than 4% oxygen with nitrogen gas during reactor power operation with reactor coolant pressure above 100 psig, except as specified in 3.7.A.5.b.
- b. Within the 24-hour period subsequent to placing the reactor in the RUN mode following a shutdown, the containment atmosphere oxygen concentration shall be reduced to less than 4% by volume and maintained in this condition. Deinerting may commence 24 hours prior to a shutdown.
- c. If plant control air is being used to supply the pneumatic control system inside primary containment, the reactor shall not be started, or if at power, the reactor shall be brought to a Cold Shutdown condition within 24 hours.
- d. If Specification 3.7.A.5.a and 3.7.A.5.b cannot be met, an orderly shutdown shall be initiated and the reactor shall be in a Cold Shutdown condition within 24 hours.

SURVEILLANCE REQUIREMENTS4.7.A Primary Containment

## 4.7.A.4 (Cont'd)

- c. Once each operating cycle each vacuum breaker valve shall be inspected for proper operation of the valve and limit switches.
- d. A leak test of the drywell to suppression chamber structure shall be conducted during each operating cycle. Acceptable leak rate is 0.09 lb/sec of primary containment atmosphere with 1 psi differential.

5. Oxygen Concentration

- a. The primary containment oxygen concentration shall be measured and recorded daily. The oxygen measurement shall be adjusted to account for the uncertainty of the method used by adding a predetermined error function.
- b. The methods used to measure the primary containment oxygen concentration shall be calibrated once every refueling cycle.
- c. The control air supply valve for the pneumatic control system inside the primary containment shall be verified closed prior to reactor startup and monthly thereafter.

### 3.7/4.7 CONTAINMENT SYSTEMS

#### LIMITING CONDITIONS FOR OPERATION

##### 3.7.A. Primary Containment

##### 6. Drywell-Suppression Chamber Differential Pressure

a. Differential pressure between the drywell and suppression chamber shall be maintained at equal to or greater than 1.1 psid except as specified in (1) and (2) below:

(1) This differential shall be established within 24 hours of achieving operating temperature and pressure. The differential pressure may be reduced to less than 1.1 psid 24 hours prior to a scheduled shutdown.

(2) This differential may be decreased to less than 1.1 psid for a maximum of four hours during required operability testing of the HPCI system, RCIC system and the drywell-pressure suppression chamber vacuum breakers.

b. If the differential pressure of Specification 3.7.A.6.a cannot be maintained and the differential pressure cannot be restored within the subsequent six-hour period, an orderly shutdown shall be initiated and the reactor shall be in the Cold Shutdown condition within 24 hours.

#### SURVEILLANCE REQUIREMENTS

##### 4.7.A. Primary Containment

##### 6. Drywell-Suppression Chamber Differential Pressure

a. The pressure differential between the drywell and suppression chamber shall be recorded at least once each shift.



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. 138  
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 June 4, 1987, 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. 138, 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



Gary G. Zech, Assistant Director  
for Projects  
TVA Projects Division  
Office of Special Projects

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: February 12, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 138

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

3.7/4.7-9

3.7/4.7-10

3.7/4.7-11

3.7/4.7-12

INSERT

3.7/4.7-9\*

3.7/4.7-10

3.7/4.7-11

3.7/4.7-12\*

4.7.A. Primary Containment

4.7.A.2. (Cont'd)

j. Continuous Leak Rate Monitor

When the primary containment is inerted the containment shall be continuously monitored for gross leakage by review of the inerting system makeup requirements. This monitoring system may be taken out of service for maintenance but shall be returned to service as soon as practicable.

k. Drywell and Torus Surfaces

The interior surfaces of the drywell and torus above the level one foot below the normal water line and outside surfaces of the torus below the water line shall be visually inspected each operating cycle for deterioration and any signs of structural damage with particular attention to piping connections and supports and for signs of distress or displacement.

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.7.A Primary Containment

3. Pressure Suppression Chamber -  
Reactor Building Vacuum Breakers

- a. Except as specified in 3.7.A.3.b below, two pressure suppression chamber-reactor building vacuum breakers shall be OPERABLE at all times when primary containment integrity is required. The setpoint of the differential pressure instrumentation which actuates the pressure suppression chamber-reactor building vacuum breakers shall be 0.5 psid.
- b. From and after the date that one of the pressure suppression chamber-reactor building vacuum breakers is made or found to be INOPERABLE for any reason, reactor operation is permissible only during the succeeding seven days, provided that the repair procedure does not violate primary containment integrity.

4. Drywell-Pressure Suppression Chamber Vacuum Breakers

- a. When primary containment is required, all drywell-suppression chamber vacuum breakers shall be OPERABLE and positioned in the fully closed position (except during testing) except as specified in 3.7.A.4.b and 3.7.A.4.c., below.
- b. One drywell-suppression chamber vacuum breaker may be nonfully closed so long as it is determined to be not more than 3° open as indicated by the position lights.

4.7.A Primary Containment

3. Pressure Suppression Chamber-  
Reactor Building Vacuum Breakers

- a. The pressure suppression chamber-reactor building vacuum breakers shall be exercised and the associated instrumentation including setpoint shall be functionally tested for proper operation each three months.
- b. A visual examination and determination that the force required to open each vacuum breaker (check valve) does not exceed 0.5 psid will be made each refueling outage.

4. Drywell-Pressure Suppression Chamber Vacuum Breakers

- a. Each drywell-suppression chamber vacuum breaker shall be exercised through an opening-closing cycle every month.
- b. When it is determined that two vacuum breakers are INOPERABLE for opening at a time when operability is required, all other vacuum breaker valves shall be exercised immediately and every 15 days thereafter until the INOPERABLE valve has been returned to normal service.

## LIMITING CONDITIONS FOR OPERATION

## SURVEILLANCE REQUIREMENTS

3.7.A Primary Containment4.7.A Primary Containment

## 3.7.A.4 (Cont'd)

## 4.7.A.4 (Cont'd)

c. Two drywell-suppression chamber vacuum breakers may be determined to be INOPERABLE for opening.

c. Once each operating cycle each vacuum breaker valve shall be inspected for proper operation of the valve and limit switches.

d. If Specifications 3.7.A.4.a, .b, or .c cannot be met, the unit shall be placed in a Cold Shutdown condition in an orderly manner within 24 hours.

d. A leak test of the drywell to suppression chamber structure shall be conducted during each operating cycle. Acceptable leak rate is 0.09 lb/sec of primary containment atmosphere with 1 psi differential.

5. Oxygen Concentration5. Oxygen Concentration

a. Containment atmosphere shall be reduced to less than 4% oxygen with nitrogen gas during reactor power operation with reactor coolant pressure above 100/psig, except as specified in 3.7.A.5.b.

a. The primary containment oxygen concentration shall be measured and recorded daily. The oxygen measurement shall be adjusted to account for the uncertainty of the method used by adding a predetermined error function.

b. Within the 24-hour period subsequent to placing the reactor in the RUN mode following a shutdown, the containment atmosphere oxygen concentration shall be reduced to less than 4% by volume and maintained in this condition. Deinerting may commence 24 hours prior to a shutdown.

b. The methods used to measure the primary containment oxygen concentration shall be calibrated once every refueling cycle.

c. If plant control air is being used to supply the pneumatic control system inside primary containment, the reactor shall not be started, or if at power, the reactor shall be brought to a Cold Shutdown condition within 24 hours.

c. The control air supply valve for the pneumatic control system inside the primary containment shall be verified closed prior to reactor startup and monthly thereafter.

d. If Specification 3.7.A.5.a and 3.7.A.5.b cannot be met, an orderly shutdown shall be initiated and the reactor shall be in a Cold Shutdown condition within 24 hours.

### 3.7/4.7 CONTAINMENT SYSTEMS

#### LIMITING CONDITIONS FOR OPERATION

##### 3.7.A. Primary Containment

###### 6. Drywell-Suppression Chamber Differential Pressure

a. Differential pressure between the drywell and suppression chamber shall be maintained at equal to or greater than 1.1 psid except as specified in (1) and (2) below:

(1) This differential shall be established within 24 hours of achieving operating temperature and pressure. The differential pressure may be reduced to less than 1.1 psid 24 hours prior to a scheduled shutdown.

(2) This differential may be decreased to less than 1.1 psid for a maximum of four hours during required operability testing of the HPCI system, RCIC system and the drywell-pressure suppression chamber vacuum breakers.

b. If the differential pressure of Specification 3.7.A.6.a cannot be maintained and the differential pressure cannot be restored within the subsequent six-hour period, an orderly shutdown shall be initiated and the reactor shall be in the Cold Shutdown condition within 24 hours.

#### SURVEILLANCE REQUIREMENTS

##### 4.7.A. Primary Containment

###### 6. Drywell-Suppression Chamber Differential Pressure

a. The pressure differential between the drywell and suppression chamber shall be recorded at least once each shift.



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. 113  
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 June 4, 1987, 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. 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 its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Gary G. Zech, Assistant Director  
for Projects  
TVA Projects Division  
Office of Special Projects

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: February 12, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 113

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

3.7/4.7-9

3.7/4.7-10

3.7/4.7-11

3.7/4.7-12

INSERT

3.7/4.7-9\*

3.7/4.7-10

3.7/4.7-11

3.7/4.7-12\*

4.7.A. Primary Containment

4.7.A.2. (Cont'd)

j. Continuous Leak Rate Monitoring

When the primary containment is inerted the containment shall be continuously monitored for gross leakage by review of the inerting system makeup requirements. This monitoring system may be taken out of service for maintenance but shall be returned to service as soon as practicable.

- k. The interior surfaces of the drywell and torus above the level one foot below the normal water line and outside surfaces of the torus below the water line shall be visually inspected each operating cycle for deterioration and any signs of structural damage with particular attention to piping connections and supports and for signs of distress or displacement.

### 3.7/4.7 CONTAINMENT SYSTEMS

#### LIMITING CONDITIONS FOR OPERATION

##### 3.7.A PRIMARY CONTAINMENT

##### 3. Pressure Suppression Chamber - Reactor Building Vacuum Breakers

- a. Except as specified in 3.7.A.3.b below, two pressure suppression chamber-reactor building vacuum breakers shall be OPERABLE at all times when primary containment integrity is required. The setpoint of the differential pressure instrumentation which actuates the pressure suppression chamber-reactor building vacuum breakers shall be 0.5 psid.
- b. From and after the date that one of the pressure suppression chamber-reactor building vacuum breakers is made or found to be INOPERABLE for any reason, reactor operation is permissible only during the succeeding seven days, provided that the repair procedure does not violate primary containment integrity.

##### 4. Drywell-Pressure Suppression Chamber Vacuum Breakers

- a. When primary containment is required, all drywell-suppression chamber vacuum breakers shall be OPERABLE and positioned in the fully closed position (except during testing) except as specified in 3.7.A.4.b and 3.7.A.4.c below.
- b. One drywell-suppression chamber vacuum breaker may be nonfully closed so long as it is determined to be not more than 3° open as indicated by the position lights.

#### SURVEILLANCE REQUIREMENTS

##### 4.7.A PRIMARY CONTAINMENT

##### 3. Pressure Suppression Chamber-Reactor Building Vacuum Breakers

- a. The pressure suppression chamber-reactor building vacuum breakers shall be exercised and the associated instrumentation including setpoint shall be checked for proper operation each three months.

- b. A visual examination and determination that the force required to open each vacuum breaker (check valve) does not exceed 0.5 psid will be made each refueling outage.

##### 4. Drywell-Pressure Suppression Chamber Vacuum Breakers

- a. Each drywell-suppression chamber vacuum breaker shall be exercised through an opening-closing cycle every month.
- b. When it is determined that two vacuum breakers are INOPERABLE for opening at a time when operability is required, all other vacuum breaker valves shall be exercised immediately and every 15 days thereafter until the INOPERABLE valve has been returned to normal service.

## LIMITING CONDITIONS FOR OPERATION

## SURVEILLANCE REQUIREMENTS

3.7.A Primary Containment4.7.A Primary Containment

## 3.7.A.4 (Cont'd)

## 4.7.A.4 (Cont'd)

- c. Two drywell-suppression chamber vacuum breakers may be determined to be INOPERABLE for opening.
- d. If Specifications 3.7.A.4.a, 3.7.A.4.b, or 3.7.A.4.c, cannot be met, the unit shall be placed in a Cold Shutdown condition in an orderly manner within 24 hours.

- c. Once each operating cycle, each vacuum breaker valve shall be inspected for proper operation of the valve and limit switches.
- d. A leak test of the drywell to suppression chamber structure shall be conducted during each operating cycle. Acceptable leak rate is 0.09 lb/sec of primary containment atmosphere with 1 psi differential.

5. Oxygen Concentration5. Oxygen Concentration

- a. Containment atmosphere shall be reduced to less than 4% oxygen with nitrogen gas during reactor power operation with reactor coolant pressure above 100/psig, except as specified in 3.7.A.5.b.
- b. Within the 24-hour period subsequent to placing the reactor in the RUN mode following a shutdown, the containment atmosphere oxygen concentration shall be reduced to less than 4% by volume and maintained in this condition. Deinerting may commence 24 hours prior to a shutdown.
- c. If plant control air is being used to supply the pneumatic control system inside primary containment, the reactor shall not be started, or if at power, the reactor shall be brought to a Cold Shutdown condition within 24 hours.
- d. If the specifications of 3.7.A.5.a through 3.7.A.5.b cannot be met, an orderly shutdown shall be initiated and the reactor shall be in a Cold Shutdown condition within 24 hours.

- a. The primary containment oxygen concentration shall be measured and recorded daily. The oxygen measurement shall be adjusted to account for the uncertainty of the method used by adding a predetermined error function.
- b. The methods used to measure the primary containment oxygen concentration shall be calibrated once every refueling cycle.
- c. The control air supply valve for the pneumatic control system inside the primary containment shall be verified closed prior to reactor startup and monthly thereafter.

3.7/4.7 CONTAINMENT SYSTEMS

LIMITING CONDITIONS FOR OPERATION

3.7.A. Primary Containment

6. Drywell-Suppression Chamber  
Differential Pressure

a. Differential pressure between the drywell and suppression chamber shall be maintained at equal to or greater than 1.1 psid except as specified in (1) and (2) below:

(1) This differential shall be established within 24 hours of achieving operating temperature and pressure. The differential pressure may be reduced to less than 1.1 psid 24 hours prior to a scheduled shutdown.

(2) This differential may be decreased to less than 1.1 psid for a maximum of four hours during required operability testing of the HPCI system, RCIC system and the drywell-pressure suppression chamber vacuum breakers.

b. If the differential pressure of Specification 3.7.A.6.a cannot be maintained and the differential pressure cannot be restored within the subsequent six-hour period, an orderly shutdown shall be initiated and the reactor shall be in the Cold Shutdown condition within 24 hours.

SURVEILLANCE REQUIREMENTS

4.7.A. Primary Containment

6. Drywell-Suppression Chamber  
Differential Pressure

a. The pressure differential between the drywell and suppression chamber shall be recorded at least once each shift.



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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

SUPPORTING AMENDMENT NO. 142 TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 138 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 113 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2 AND 3

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

1.0 INTRODUCTION

The proposed amendments would impose a limit on reactor operation when nitrogen is not being used to supply the pneumatic control system inside containment. The amendment request is in response to Generic Letter 84-09, Hydrogen Recombiner Capability. The proposed amendments also delete an obsolete reference to the fire-related startup retesting program.

2.0 EVALUATION

The proposed amendments would add new technical specification requirements in response to Generic Letter (GL) 84-09, Hydrogen Recombiner Capability. The purpose of these technical specifications is to limit the possibility of the pneumatic control system being an oxygen source inside primary containment during reactor power operation.

The primary pneumatic supply to the containment is provided by compressors which take suction from the nitrogen inerted containment atmosphere itself. The system is also provided with a backup supply of compressed air from the plant control air system and prior to restart of Unit 2 modifications will be completed so that there will be an external supply of compressed nitrogen from the Containment Atmospheric Dilution System. The air supply is normally isolated by a lock closed manual control valve which is closed during times when the containment is inerted by nitrogen. Once the above modification is complete and the air supply control valve is locked closed, this system becomes the nitrogen containment atmospheric dilution system which satisfies the requirements of GL 84-09.

This proposed change would limit operation of the reactor with the air supply valves open by requiring the plant to be in the cold shutdown condition within 24 hours of opening the locked closed air supply valves. It would reduce the possibility of the containment becoming deinerted in a post-accident situation while at the same time allowing for a more orderly shutdown on loss of normal pneumatic supply.

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This proposed change would add more stringent technical specification requirements in accordance with Generic Letter 84-09. Therefore, the staff has concluded that the proposed technical specification changes will not reduce the margin of nuclear safety.

The proposed amendments would also delete the first phrase of technical specification 3.7.A.5.a which is purely administrative and is not related to the other changes except that it is in the same technical specification section. The deleted phrase makes this requirement effective after the completion of the fire-related startup retesting program. Since this program has been completed, the requirement is effective and deleting this phrase will only remove extraneous information. No technical specification requirements are changed.

Based on the above evaluation the staff finds the proposed changes will enhance the safe operation of the plant or are administrative in nature and, therefore, the proposed changes to the technical specifications are 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 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: John Stang

Dated: February 12, 1988

February 12, 1988

MEMORANDUM FOR: Sholly Coordinator

FROM: Gary G. Zech, Assistant Director  
for Projects, OSP

SUBJECT: REQUEST FOR PUBLICATION IN BI-WEEKLY FR NOTICE - NOTICE  
OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE  
(TAC R00098/R00099/R00100)

Tennessee Valley Authority, Dockets Nos. 50-259, 50-260 and 50-296, Browns  
Ferry Nuclear Plant, Units 1, 2 and 3, Limestone County, Alabama

Date of application for amendments: June 4, 1987 (TS 233)

Brief description of amendments: The amendments would impose a limit on  
reactor operation when nitrogen is not being used to supply the pneumatic  
control system inside containment. The amendment request is in response to  
Generic Letter 84-09, Hydrogen Recombiner Capability. The amendments also  
delete an obsolete reference to the fire-related startup retesting program.

Date of issuance: February 12, 1988

Effective date: February 12, 1988, and shall be implemented within 60 days

Amendments Nos.: 142, 138, 113

Facility Operating Licenses Nos. DPR-33, DPR-52 and DPR-68: Amendments  
revised the Technical Specifications.

Date of initial notice in FEDERAL REGISTER: December 30, 1987 (52 FR 49232)

The Commission's related evaluation of the amendments is contained in a Safety  
Evaluation dated February 12, 1988.

No significant hazards consideration comments received: No

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Original signed by:  
Gary G. Zech, Assistant Director  
for Projects, OSP

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Projects Reading  
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