

ENCLOSURE 1

PROPOSED TECHNICAL SPECIFICATIONS REVISIONS

BROWNS FERRY NUCLEAR PLANT

UNITS 1, 2, AND 3

(TVA BFN TS 233)

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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.

3.7/4.7 CONTAINMENT SYSTEMS

LIMITING CONDITIONS FOR OPERATION

3.7.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 REQUIREMENTS

4.7.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 0.14 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.

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

3.7.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, .b, or .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 REQUIREMENTS

4.7.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 0.14 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

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.

3.7/4.7 CONTAINMENT SYSTEMS

LIMITING CONDITIONS FOR OPERATION

3.7.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 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.

SURVEILLANCE REQUIREMENTS

4.7.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 0.14 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.

ENCLOSURE 2

DESCRIPTION AND JUSTIFICATION BROWNS FERRY NUCLEAR PLANT (BFN)

Description of Change

Page 3.7/4.7-11 of the BFN technical specifications for units 1, 2, and 3 is changed as follows.

- (1) Technical specification 3.7.A.5.a is revised to delete the first phrase which is obsolete. The specification currently reads, "After completion of the fire-related startup retesting program, containment atmosphere shall be. . . ."
- (2) Technical specification 3.7.A.5.c is renumbered to be technical specification 3.7.A.5.d.
- (3) A new specification, technical specification 3.7.A.5.c, is added to limit reactor operation when air, instead of nitrogen, is being used to supply the pneumatic control systems inside the primary containment.
- (4) A new surveillance requirement is added as technical specification 4.7.A.5.c to verify that the air supply valve for the pneumatic control system inside the drywell and torus is closed prior to startup and during reactor power operation.

Page 3.7/4.7-10 of the technical specification is only changed by moving words from page 3.7/4.7-11 to provide more space for the changes listed above.

Reason for Change

These new technical specification requirements are being added in response to Generic Letter 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.

Justification for Change

The change that will delete the first phrase of technical specification 3.7.A.5.a 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.

The relatively small containment volume inherent in the GE-BWR pressure suppression containment and the large amount of zirconium in the core are such that the occurrence of a limited reaction of the zirconium and steam during a

Justification for Change (Cont'd)

loss-of-coolant accident could result in a flammable concentration of hydrogen in the containment. If a sufficient amount of hydrogen is generated and oxygen is available in stoichiometric quantities, the subsequent uncontrolled recombination could lead to failure of the containment. Maintaining the oxygen concentration at less than 4 percent eliminates the possibility of hydrogen combustion following a loss-of-coolant accident. This limit is imposed by technical specification 3.7.A.5.a. In order to maintain this limit, nitrogen is used to operate the pneumatically controlled equipment inside the containment.

The primary pneumatic supply to the containment is provided by compressors which take suction from the containment atmosphere itself. The system is also provided with a backup supply of compressed air from the plant control air system and in the future will have an external supply of compressed nitrogen from the Containment Atmospheric Dilution System. The air supply is normally isolated by a manual control valve which is closed during times when the containment is inerted. However, the air supply is available to supply motive power to important equipment inside the drywell, such as drywell coolers and main steam relief valves during abnormal situations.

This proposed change will limit operation of the reactor with the air supply valves open, but will not prohibit its use in an exigent situation. It will reduce the possibility of the containment becoming deinerted in a postaccident situation while at the same time allowing for a more orderly shutdown on loss of normal pneumatic supply.

This proposed change produces additional technical specification requirements that are consistent with the current technical specification regarding oxygen limitations. Therefore, TVA has concluded that the proposed technical specification changes will not reduce the margin of nuclear safety.

ENCLOSURE 3

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION
BROWNS FERRY NUCLEAR PLANT (BFN)
UNITS 1, 2, AND 3

Description of Amendment Request

The proposed amendment would change the BFN Technical Specifications for units 1, 2, and 3 by adding new requirements that restrict reactor power operation when air, instead of nitrogen, is being used in the pneumatic control system inside primary containment and by deleting an obsolete reference to the fire-related startup retesting program.

Basis for Proposed No Significant Hazards Consideration Determination

The Commission has provided standards for determining whether a significant hazards consideration exists as stated in 10 CFR 50.92 (c). A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with a proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, or (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety.

1. The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated. This amendment will not affect the probability of an accident since it does not change any operational conditions or normal valve alignment and does not affect any equipment that could cause an accident. The consequences of an accident could be reduced since the amendment would decrease the likelihood of having oxygen concentration exceed four percent in the containment atmosphere after an accident.
2. The proposed amendment does not create the possibility of a new or different kind of accident from any previously analyzed, since it does not eliminate or modify any protective functions nor permit any new operational conditions.
3. The margin of safety will not be reduced since the requirements of TS have been increased and the likelihood of reaching a combustible hydrogen and oxygen mixture in containment has been reduced. No other safety margins are affected.

Since the application for amendment involves a proposed change that is encompassed by the criteria for which no significant hazards consideration exists, TVA proposes to determine that the proposed amendment does not involve a significant hazards consideration.