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Docket Nos. 50-259
50-260
and 50-296

April 1, 1982

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

Dear Mr. Parris:

The Commission has issued the enclosed Amendment Nos. 82 , 79 and 53 to Facility 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 April 24, 1981 (TVA BFNP TS 157), as supplemented by your letters of April 29, 1981 and May 13, 1981 and discussions with your staff.

These changes to the Technical Specifications clarify the definition of secondary containment integrity.

Copies of the Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

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

Enclosures:
1. Amendment No. 82 to DPR-33
2. Amendment No. 79 to DPR-52
3. Amendment No. 53 to DPR-68
4. Safety Evaluation
5. Notice

cc w/enclosures:
See next page

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DATE	11/10/81	11/10/81	11/13/81	11/16/81	[illegible]	3/17/82	

Mr. Hugh G. Parris

cc:

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

BROWNS FERRY NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 82
License No. DPR-33

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendments by Tennessee Valley Authority (the licensee), dated April 24, 1981, as supplemented by letters dated April 29, 1981 and May 13, 1981, 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 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. 82, 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 its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 1, 1982

ATTACHMENT TO LICENSE AMENDMENT NO. 82

FACILITY OPERATING LICENSE NO. DPR-33

DOCKET NO. 50-259

Revise Appendix A as follows:

1. Replace the following pages with identically numbered pages:

4
5

Marginal lines on the above pages indicate the areas being revised.

2. Add the following new page:

4A

3. The overleaf pages are not being revised and should be retained.

1.0 DEFINITIONS (Cont'd)

2. Run Mode - In this mode the reactor system pressure is at or above 825 psig and the reactor protection system is energized with APRM protection (excluding the 15% high flux trip) and the RBM interlocks in service.

3. Shutdown Mode - Placing the mode switch to the shutdown position initiates a reactor scram and power to the control rod drives is removed. After a short time period (about 10 sec), the scram signal is removed allowing a scram reset and restoring the normal valve lineup in the control rod drive hydraulic system; also, the main steam line isolation scram and main condenser low vacuum scram are bypassed if reactor vessel pressure is below 1055 psig.

4. Refuel Mode - With the mode switch in the refuel position interlocks are established so that one control rod only may be withdrawn when the Source Range Monitor indicate at least 3 cps and the refueling crane is not over the reactor; also the main steam line isolation scram and main condenser low vacuum scram are bypassed if the reactor vessel pressure is below 1055 psig. If the refueling crane is over the reactor, all rods must be fully inserted and none can be withdrawn.

N. Rated Power - Rated power refers to operation at a reactor power of 3,293 MWt; this is also termed 100 percent power and is the maximum power level authorized by the operating license. Rated steam flow, rated coolant flow, rated neutron flux, and rated nuclear system pressure refer to the values of these parameters when the reactor is at rated power. Design power, the power to which the safety analysis applies, corresponds to 3,440 MWt.

O. Primary Containment Integrity - Primary containment integrity means that the drywell and pressure suppression chamber are intact and all of the following conditions are satisfied:

1. All non-automatic containment isolation valves on lines connected to the reactor coolant systems or containment which are not required to be open during accident conditions are closed. These valves may be opened to perform necessary operational activities.

2. At least one door in each airlock is closed and sealed.

3. All automatic containment isolation valves are operable or deactivated in the isolated position.

4. All blind flanges and manways are closed.

P. Secondary Containment Integrity

1. Secondary containment integrity means that the reactor building is intact and the following conditions are met:

   a) At least one door in each access opening to the turbine building, control bay and out-of-doors is closed.

   b) The standby gas treatment system is operable and can maintain 0.25 inches of water negative pressure in those areas where secondary containment integrity is stated to exist.

   c) All reactor building ventilation system automatic isolation valves are operable or deactivated in the isolated position.

2. Reactor zone secondary containment integrity means the unit reactor building is intact and the following conditions are met:

   a) At least one door between any opening to the turbine building, control bay and out-of-doors is closed.

   b) The standby gas teatment system is operable and can maintain 0.25 inches water negative pressure on the unit zone.

   c) All the unit reactor building ventilation system automatic isolation valves are operable or deactivated in the isolated position. If it is desirable for operational considerations, a reactor zone may be isolated from the other reactor zones and the refuel zone by maintaining at least one closed door in each common passageway between zones.* Reactor zone safety related features are not compromised by openings between adjacent units or refuel zone, unless it is desired to isolate a given zone.

3. Refuel zone secondary containment integrity means the refuel zone is intact and the following conditions are met:

   a) At least one door in each access opening to the out-of-doors is closed.

   b) The standby gas treatment system is operable and can maintain .25 inches water negative pressure on the refuel zone.

   c) All the refuel zone ventilation system automatic isolation valves are operable or deactivated in the isolated position. If it is desirable for operational considerations, the refuel zone may be isolated from the reactor zones by maintaining all hatches in place between refuel floor and reactor zones and at least one closed door in each access between the refuel zone and the reactor building.*

   Refuel zone safety related features are not compromised by openings between the reactor building unless it is desired to isolate a given zone.

* To effectively control zone isolation, all accesses to the affected zone will be locked or guarded to prevent uncontrolled passage to the unaffected zones.

Q. Operating Cycle - Interval between the end of one refueling outage for a particular unit and the end of the next subsequent refueling outage for the same unit.

R. Refueling Outage - Refueling outage is the period of time between the shutdown of the unit prior to a refueling and the startup of the unit after that refueling. For the purpose of designating frequency of testing and surveillance, a refueling outage shall mean a regularly scheduled outage; however, where such outages occur within 8 months of the completion of the previous refueling outage, the required surveillance testing need not be performed until the next regularly scheduled outage.

S. Alteration of the Reactor Core - The act of moving any component in the region above the core support plate, below the upper grid and within the shroud. Normal control rod movement with the control rod drive hydraulic system is not defined as a core alteration. Normal movement of in-core instrumentation and the traversing in-core probe is not defined as a core alteration.

T. Reactor Vessel Pressure - Unless otherwise indicated, reactor vessel pressures listed in the Technical Specifications are those measured by the reactor vessel steam space detectors.

U. Thermal Parameters

1. Minimum Critical Power Ratio (MCPR) - Minimum Critical Power Ratio (MCPR) is the value of the critical power ratio associated with the most limiting assembly in the reactor core. Critical Power Ratio (CPR) is the ratio of that power in a fuel assembly, which is calculated to cause some point in the assembly to experience boiling transition, to the actual assembly operating power.

2. Transition Boiling - Transition boiling means the boiling regime between nucleate and film boiling. Transition boiling is the regime in which both nucleate and film boiling occur intermittently with neither type being completely stable.

3. Core Maximum Fraction of Limiting Power Density (CMFLPD) - The highest ratio, for all fuel types in the core, of the maximum fuel rod power density (kW/ft) for a given fuel type to the limiting fuel rod power density (kW/ft) for that fuel type.

4. Average Planar Linear Heat Generation Rate (APLHGR) - The Average Planar Heat Generation Rate is applicable to a specific planar height and is equal to the sum of the linear heat generation rates for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle.

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 79
License No. DPR-52

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendments by Tennessee Valley Authority (the licensee), dated April 24, 1981, as supplemented by letter dated April 29, 1981 and May 13, 1981, 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 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. 79, 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 its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 1, 1982

ATTACHMENT TO LICENSE AMENDMENT NO. 79

FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Revise Appendix A as follows:

1. Replace the following pages with identically numbered pages:

4
5

. Marginal lines on the above pages indicate the areas being revised.

2. Add the following new page:

4A

3. The overleaf pages are not being revised and should be retained.

1.0 DEFINITIONS (Cont'd)

2. Run Mode - In this mode the reactor system pressure is at or above 825 psig and the reactor protection system is energized with APRM protection (excluding the 15% high flux trip) and the RBM interlocks in service.

3. Shutdown Mode - Placing the mode switch to the shutdown position initiates a reactor scram and power to the control rod drives is removed. After a short time period (about 10 sec), the scram signal is removed allowing a scram reset and restoring the normal valve lineup in the control rod drive hydraulic system; also, the main steam line isolation scram and main condenser low vacuum scram are bypassed if reactor vessel pressure is below 1055 psig.

4. Refuel Mode - With the mode switch in the refuel position interlocks are established so that one control rod only may be withdrawn when the Source Range Monitor indicate at least 3 cps and the refueling crane is not over the reactor; also the main steam line isolation scram and main condenser low vacuum scram are bypassed if the reactor vessel pressure is below 1055 psig. If the refueling crane is over the reactor, all rods must be fully inserted and none can be withdrawn.

N. Rated Power - Rated power refers to operation at a reactor power of 3,293 MWt; this is also termed 100 percent power and is the maximum power level authorized by the operating license. Rated steam flow, rated coolant flow, rated neutron flux, and rated nuclear system pressure refer to the values of these parameters when the reactor is at rated power. Design power, the power to which the safety analysis applies, corresponds to 3,440 MWt.

O. Primary Containment Integrity - Primary containment integrity means that the drywell and pressure suppression chamber are intact and all of the following conditions are satisfied:

1. All non-automatic containment isolation valves on lines connected to the reactor coolant systems or containment which are not required to be open during accident conditions are closed. These valves may be opened to perform necessary operational activities.

2. At least one door in each airlock is closed and sealed.

3. All automatic containment isolation valves are operable or deactivated in the isolated position.

4. All blind flanges and manways are closed.

P. Secondary Containment Integrity

1. Secondary containment integrity means that the reactor building is intact and the following conditions are met:

a) At least one door in each access opening to the turbine building, control bay and out-of-doors is closed.

b) The standby gas treatment system is operable and can maintain 0.25 inches of water negative pressure in those areas where secondary containment integrity is stated to exist.

c) All reactor building ventilation system automatic isolation valves are operable or deactivated in the isolated position.

2. Reactor zone secondary containment integrity means the unit reactor building is intact and the following conditions are met:

a) At least one door between any opening to the turbine building, control bay and out-of-doors is closed.

b) The standby gas teatment system is operable and can maintain 0.25 inches water negative pressure on the unit zone.

c) All the unit reactor building ventilation system automatic isolation valves are operable or deactivated in the isolated position. If it is desirable for operational considerations, a reactor zone may be isolated from the other reactor zones and the refuel zone by maintaining at least one closed door in each common passageway between zones.* Reactor zone safety related features are not compromised by openings between adjacent units or refuel zone, unless it is desired to isolate a given zone.

3. Refuel zone secondary containment integrity means the refuel zone is intact and the following conditions are met:

a) At least one door in each access opening to the out-of-doors is closed.

b) The standby gas treatment system is operable and can maintain .25 inches water negative pressure on the refuel zone.

c) All the refuel zone ventilation system automatic isolation valves are operable or deactivated in the isolated position. If it is desirable for operational considerations, the refuel zone may be isolated from the reactor zones by maintaining all hatches in place between refuel floor and reactor zones and at least one closed door in each access between the refuel zone and the reactor building.*

Refuel zone safety related features are not compromised by openings between the reactor building unless it is desired to isolate a given zone.

* To effectively control zone isolation, all accesses to the affected zone will be locked or guarded to prevent uncontrolled passage to the unaffected zones.

Q. Operating Cycle - Interval between the end of one refueling outage for a particular unit and the end of the next subsequent refueling outage for the same unit.

R. Refueling Outage - Refueling outage is the period of time between the shutdown of the unit prior to a refueling and the startup of the unit after that refueling. For the purpose of designating frequency of testing and surveillance, a refueling outage shall mean a regularly scheduled outage; however, where such outages occur within 8 months of the completion of the previous refueling outage, the required surveillance testing need not be performed until the next regularly scheduled outage.

S. Alteration of the Reactor Core - The act of moving any component in the region above the core support plate, below the upper grid and within the shroud. Normal control rod movement with the control rod drive hydraulic system is not defined as a core alteration. Normal movement of in-core instrumentation and the traversing in-core probe is not defined as a core alteration.

T. Reactor Vessel Pressure - Unless otherwise indicated, reactor vessel pressures listed in the Technical Specifications are those measured by the reactor vessel steam space detectors.

U. Thermal Parameters

1. Minimum Critical Power Ratio (MCPR) - Minimum Critical Power Ratio (MCPR) is the value of the critical power ratio associated with the most limiting assembly in the reactor core. Critical Power Ratio (CPR) is the ratio of that power in a fuel assembly, which is calculated to cause some point in the assembly to experience boiling transition, to the actual assembly operating power.

2. Transition Boiling - Transition boiling means the boiling regime between nucleate and film boiling. Transition boiling is the regime in which both nucleate and film boiling occur intermittently with neither type being completely stable.

3. Core Maximum Fraction of Limiting Power Density (CMFLPD) - The highest ratio, for all fuel types in the core, of the maximum fuel rod power density (kW/ft) for a given fuel type to the limiting fuel rod power density (kW/ft) for that fuel type.

4. Average Planar Linear Heat Generation Rate (APLHGR) - The Average Planar Heat Generation Rate is applicable to a specific planar height and is equal to the sum of the linear heat generation rates for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle.

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 53
License No. DPR-68

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendments by Tennessee Valley Authority (the licensee), dated April 24, 1981, as supplemented by letters dated April 29, 1981 and May 13, 1981, 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 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. 53, 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 its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 1, 1982

ATTACHMENT TO LICENSE AMENDMENT NO. 53

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:

 4
 5

2. Marginal lines on the above pages indicate revised area.

3. Add the following new page:

 4A

4. Refuel Mode - With the mode switch in the refuel position interlocks are established so that one control rod only may be withdrawn when the Source Range Monitor indicate at least 3 cps and the refueling crane is not over the reactor; also, the main steam line isolation scram and main condenser low vacuum scram are bypassed if reactor vessel pressure is below 1055 psig. If the refueling crane is over the reactor, all rods must be fully inserted and none can be withdrawn.

N. Rated Power - Rated power refers to operation at a reactor power of 3,293 MWt; this is also termed 100 percent power and is the maximum power level authorized by the operating license. Rated steam flow, rated coolant flow, rated neutron flux, and rated nuclear system pressure refer to the values of these parameters when the reactor is at rated power. Design power, the power to which the safety analysis applies, corresponds to 3,440 MWt.

O. Primary Containment Integrity - Primary containment integrity means that the drywell and pressure suppression chamber are intact and all of the following conditions are satisfied:

1. All non-automatic containment isolation valves on lines connected to the reactor coolant system or containment which are not required to be open during accident conditions are closed. These valves may be opened to perform necessary operational activities.

2. At least one door in each airlock is closed and sealed.

3. All automatic containment isolation valves are operable or deactivated in the isolated position.

4. All blind flanges and manways are closed.

P. Secondary Containment Integrity

1. Secondary containment integrity means that the reactor building is intact and the following conditions are met:

   a) At least one door in each access opening to the turbine building, control bay and out-of-doors is closed.

   b) The standby gas treatment system is operable and can maintain 0.25 inches of water negative pressure in those areas where secondary containment integrity is stated to exist.

   c) All reactor building ventilation system automatic isolation valves are operable or deactivated in the isolated position.

2. Reactor zone secondary containment integrity means the unit reactor building is intact and the following conditions are met:

   a) At least one door between any opening to the turbine building, control bay and out-of-doors is closed.

   b) The standby gas teatment system is operable and can maintain 0.25 inches water negative pressure on the unit zone.

   c) All the unit reactor building ventilation system automatic isolation valves are operable or deactivated in the isolated position. If it is desirable for operational considerations, a reactor zone may be isolated from the other reactor zones and the refuel zone by maintaining at least one closed door in each common passageway between zones.* Reactor zone safety related features are not compromised by openings between adjacent units or refuel zone, unless it is desired to isolate a given zone.

3. Refuel zone secondary containment integrity means the refuel zone is intact and the following conditions are met:

   a) At least one door in each access opening to the out-of-doors is closed.

   b) The standby gas treatment system is operable and can maintain .25 inches water negative pressure on the refuel zone.

   c) All the refuel zone ventilation system automatic isolation valves are operable or deactivated in the isolated position. If it is desirable for operational considerations, the refuel zone may be isolated from the reactor zones by maintaining all hatches in place between refuel floor and reactor zones and at least one closed door in each access between the refuel zone and the reactor building.*

   Refuel zone safety related features are not compromised by openings between the reactor building unless it is desired to isolate a given zone.

* To effectively control zone isolation, all accesses to the affected zone will be locked or guarded to prevent uncontrolled passage to the unaffected zones.

Q. Operating Cycle - Interval between the end of one refueling outage for a particular unit and the end of the next subsequent refueling outage for the same unit.

R. Refueling Outage - Refueling outage is the period of time between the shutdown of the unit prior to a refueling and the startup of the unit after that refueling. For the purpose of designating frequency of testing and surveillance, a refueling outage shall mean a regularly scheduled outage; however, where such outages occur within 8 months of the completion of the previous refueling outage, the required surveillance testing need not be performed until the next regularly scheduled outage.

S. Alteration of the Reactor Core - The act of moving any component in the region above the core support plate, below the upper grid and within the shroud. Normal control rod movement with the control rod drive hydraulic system is not defined as a core alteration. Normal movement of in-core instrumentation and the traversing in-core probe is not defined as a core alteration.

T. Reactor Vessel Pressure - Unless otherwise indicated, reactor vessel pressures listed in the Technical Specifications are those measured by the reactor vessel steam space detectors.

U. Thermal Parameters

1. Minimum-Critical Power Ratio (MCPR) - Minimum Critical Power Ratio (MCPR) is the value of the critical power ratio associated with the most limiting assembly in the reactor core. Critical Power Ratio (CPR) is the ratio of that power in a fuel assembly, which is calculated to cause some point in the assembly to experience boiling transition, to the actual assembly operating power.

2. Transition Boiling - Transition boiling means the boiling regime between nucleate and film boiling. Transition boiling is the regime in which both nucleate and film boiling occur intermittently with neither type being completely stable.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 82 TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 79 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 53 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNIT NOS. 1, 2 AND 3

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

1.0 Introduction

By letter dated April 24, 1981 (TVA BFNP TS 157), and supplemented by letters dated April 29, 1981 and May 13, 1981, the Tennessee Valley Authority (the licensee or TVA) requested changes to the Technical Specifications (Appendix A) appended to Facility Operating License Nos. DPR-33, DPR-52 and DPR-68 for the Browns Ferry Nuclear Plant, Unit Nos. 1, 2 and 3. The proposed amendments and revised Technical Specifications would clarify the definition of secondary containment integrity.

2.0 Discussion

The design of secondary containment at the Browns Ferry Nuclear Plant is described in Section 5.3 of the Final Safety Analyses Report (FSAR). Secondary containment consists of the one large reactor building that houses the primary containments for Units 1, 2 and 3, the control rooms for these three units, the spent fuel pools and associated refueling systems for the three units and much of the safety-related equipment and systems that serve the three units. The reactor building is divided into four ventilation zones which may be isolated independent of each other. The refueling room which is common to the three units forms the refueling zone. The individual units below the refueling floor form the other three reactor zones. The four zone ventilation control system provides increased capability for localizing the consequences of an accident or radioactive release such that the effect will be localized in one zone while maintaining the ability to isolate the entire reactor building if necessary. With one or more zones isolated the normal operations may be continued in the unaffected zones. If the internal zone boundaries should fail, the entire reactor building would still meet the requirements of secondary containment by assuring filtered elevated release. The zone system is not an engineered safeguard and the failure of the zone system would not in any way prevent isolation or reduce the capacity of the secondary containment system. As noted in the FSAR, the reactor building is divided into four ventilation zones which may be isolated independent of each other. The refueling areas - which are common to the three units - form the refueling zone. The individual units located below the refueling floor form the other three reactor zones. As noted in the FSAR, the zone system is not an engineered safeguard. As the FSAR also points out, a reactor zone is designed to be isolated upon isolation of the primary containment in that particular zone, by high radiation level in the ventilation exhaust duct leaving that particular zone or by manual alignment. The refueling zone is always isolated when any reactor zone is isolated.

The secondary containment system provides primary containment when any of the three primary containment systems are open such as during refueling and maintenance operations. During normal operation - and when isolated - the secondary containment is maintained at a negative pressure relative to the building exterior. Secondary containment integrity is required to be periodically verified by testing to be certain that the in-leakage rate is less than the standby gas treatment system (SGTS) capacity when the building is subjected to an internal negative pressure of 0.25 inches of water. The procedures for conducting this test are described in any of the summary technical reports on secondary containment leak rate testing. Technical Specification 4.7.C.1.2, .3, and .4 and associated surveillance requirements specify the particular conditions for operation and testing requirements for the different zones. It is noted that the secondary containment may be tested as a whole or individual zones.

On April 11, 1981, Unit 1 shutdown for refueling and major modifications to the Mark I type torus. As usual the primary (reactor) containment was opened to the Unit 1 reactor zone of secondary containment. Since the reactor vessel head was left off, the primary system and the Unit 1 reactor zone were open to the refueling zone. A large opening was cut into the torus to permit access for personnel and equipment. Also, equipment hatches between the reactor containment and reactor building were kept open to facilitate movement of personnel and equipment. Thus, the Unit 1 primary containment was open to-and could not be isolated from-two zones of secondary containment.

As discussed above, secondary containment at Browns Ferry consists of the single large reactor building. It is necessary to traverse the Unit 1 reactor zone of secondary containment to reach the Units 2 and 3 reactor zones. This movement of personnel between zones raised a concern on the part of the NRC staff. The doors between the zones had not been regularly maintained and some would not automatically close. Also, the plant personnel occasionally propped open the doors between zones to facilitate movement of equipment. In response to these concerns, TVA submitted the proposed changes to the Technical Specifications transmitted by their letter of April 24, 1981 to clarify the definition of secondary containment. The proposed changes, alone, did not alleviate these concerns. These were discussed in conference calls with the TVA staff, and us (Region II, I&E, and NRR) on April 23, 1981, April 27, 1981 and May 8, 1981 and was the subject of TVA's supplemental letters of April 29, 1981 and May 13, 1981. In addition to the agreements discussed in these letters, TVA committed to include the doors between zones on a routine maintenance program to check that the door closures would automatically secure the doors.

3.0 Evaluation

The proposed changes to the Technical Specifications were prompted by NRC concerns. The changes are basically a clarification of the definition of secondary containment as defined in the FSAR.

The changes will add an entire new page-page 4A-to the definition section of the Technical Specifications to define much more precisely what conditions must be met to maintain integrity in the individual reactor zones and the refuel zone within secondary containment and what conditions must be met in the overall reactor building to maintain secondary containment integrity. As discussed in Section 2.0, above, during even normal operations, there is a need for very frequent traffic between the three reactor zones and between the reactor building, the turbine building, the other adjoining buildings and the out-of-doors. There are approximately 1000 operations type personnel and about 400 field service personnel normally onsite; the duties of many of these personnel require that they routinely move between zones and into and out of secondary containment. During the Unit 1 outage, there were an additional 1250 trades and labor personnel onsite, most of whom were frequently moving into or out of the reactor building. During the outages, it is necessary to bring large, heavy items of material into the reactor building on flat-bed trucks through the equipment air lock. The only crane capable of handling heavy items is in the refueling zone, which requires that the large hatch between the refueling zone and reactor zone be removed. These proposed changes note specifically that such opening of inner doors or removal of hatches does not compromise overall secondary containment, provided that secondary containment to the environment is maintained. This position is clearly confirmed by discussion in the FSAR.

To satisfy NRC concerns regarding tighter control between the individual zones, the licensee has made additional commitments as discussed in TVA's letters dated April 29, 1981 and May 13, 1981. These additional commitments will minimize the spread of contamination between the separate zones during accidents.

We conclude that the proposed changes to the Technical Specifications are desirable, will enhance safety at Browns Ferry and are acceptable.

4.0 Environmental Consideration

We have determined that these amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that these amendments involve an action which is insignificant from the standpoint of environmental impact, and pursuant to 10 CFR Section 51.5(d)(4) that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

5.0 Conclusions

We have concluded based on the considerations discussed above that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) 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.

Dated: April 1, 1982

UNITED STATES NUCLEAR REGULATORY COMMISSION

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

TENNESSEE VALLEY AUTHORITY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 82 to Facility Operating License No. DPR-33, Amendment No. 79 to Facility Operating License No. DPR-52, and Amendment No. 53 to Facility Operating License No. DPR-68 issued to Tennessee Valley Authority (the licensee), which revised Technical Specifications for operation of the Browns Ferry Nuclear Plant, Units Nos. 1, 2, and 3, located in Limestone County, Alabama. The amendments are effective as of the date of issuance.

These changes to the Technical Specifications clarify the definition of secondary containment integrity.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of these amendments.

For further details with respect to this action, see (1) the application for amendments dated April 24, 1981, as supplemented by letters dated April 29, 1981 and May 13, 1981, (2) Amendment No. 82 to License No. DPR-33, Amendment No. 79 to License No. DPR-52, and Amendment No. 53 to License No. DPR-68, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D. C. and at the Athens Public Library, South and Forrest, Athens, Alabama 35611. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 1st day of April 1982.

FOR THE NUCLEAR REGULATORY COMMISSION

DBVassallo

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