

August 15, 1975

Docket Nos. 50-259  
and 50-260

Tennessee Valley Authority  
ATTN: Mr. James E. Watson  
Manager of Power  
818 Power Building  
Chattanooga, Tennessee 37201

Gentlemen:

The Commission has issued the enclosed Amendments No. 13 and 10 to Facility Licenses No. DPR-33 and DPR-52 for the Browns Ferry Nuclear Plant, Units 1 and 2. These amendments include Changes No. 13, and are in response to your request of July 17, 1975.

These amendments change the Technical Specifications to allow control rod movement with one fuel assembly in the core.

Copies of the related Safety Evaluation and the Federal Register Notice are also enclosed.

Sincerely,

/s/ Thomas V. Wambach

for/ Robert A. Purple, Chief  
Operating Reactors Branch #1  
Division of Reactor Licensing

Enclosures:

1. Amendment No. 13 to DPR-33
2. Amendment No. 10 to DPR-52
3. Safety Evaluation
4. Federal Register Notice

ccs: See next page

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August 15, 1975

cc w/enclosures:

Robert H. Marquis  
General Counsel  
629 New Sprankle Building  
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Athens Public Library  
South and Forrest  
Athens, Alabama 35611

Mr. Thomas Lee Hammons  
Chairman, Limestone County Board  
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Anthony Z. Roisman, Esquire  
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1712 N Street, NW  
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cc w/ enclosures & incoming  
Ira L. Myers, M.D.  
State Health Officer  
State Department of Public Health  
State Office Building  
Montgomery, Alabama 36104

Mr. Dave Hopkins  
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1421 Peachtree Street, NE  
Atlanta, Georgia 30309

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. 13  
License No. DPR-33

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (the licensee) dated July 17, 1975, 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; and
  - 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.
2. Accordingly, the license is amended by a change 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, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 13."

3. This license amendment is effective as of July 17, 1975.

FOR THE NUCLEAR REGULATORY COMMISSION

*Thomas V. Wambach*

*for*

Robert A. Purple, Chief  
Operating Reactors Branch #1  
Division of Reactor Licensing

Attachment:  
Change No. 13 to Technical  
Specifications

Date of Issuance: August 15, 1975

ATTACHMENT TO LICENSE AMENDMENT NO. 13 TO LICENSE NO. DPR-33

AND LICENSE AMENDMENT NO. 10 TO LICENSE NO. DPR-52

(CHANGE NO. 13 TO THE TECHNICAL SPECIFICATIONS)

DOCKET NOS. 50-259 AND 50-260

Revise Appendix A as follows:

Remove pages 108, 115 and 252.

Insert revised pages 108, 115, and 252.

REACTIVITY CONTROL

Applicability

Applies to the operational status of the control rod system.

Objective

To assure the ability of the control rod system to control reactivity while fuel is in the reactor vessel.

Specification

While more than one fuel assembly is in the reactor vessel, the requirements of 3.3.A through 3.3.G shall be met.

- A. All control rods shall be inserted in the full-in position.
- B. The directional control valves shall be disarmed electrically for all control rods.
- C. The manual valves in the drive water supply shall be in the shut position to prohibit rod movement.
- D. The control rod accumulators shall be charged.
- E. Two SRM channels shall be functional.
- F. One control rod drive pump shall be in service.

4.3 REACTIVITY CONTROL

Applicability

Applies to the surveillance requirements of the control rod system.

Objective

To verify the ability of the control rod system to control reactivity.

Specification

- A. Control rod position shall be verified in accordance with Table 4.2.A.
- B. Each directional control valve shall be verified to be electrically disarmed at intervals not to exceed once every 3 days.
- C. The drive water supply valve (85-593) to each hydraulic control unit shall be verified closed and the water supply valves (85-612, 85-613) to each shall be verified open at intervals not to exceed once every 3 days.
- D. The accumulator pressure shall be checked once a day.
- E. The count rate shall be recorded once each shift.
- F. The control rod drive pump discharge pressure shall be checked once per shift.

## 3.10 CORE ALTERATIONS

### Applicability

Applies to the removal of fuel from the reactor pressure vessel.

### Objective

To prevent criticality during the removal of fuel from the reactor pressure vessel.

### Specification

#### A. Reactivity Control

1. The reactor shall be kept in cold shutdown and all control rods fully inserted during fuel removal while more than one fuel assembly is in the reactor.
2. The reactor mode switch shall be locked in the "SHUTDOWN" position during fuel removal while more than one fuel assembly is in the reactor vessel.

#### B. Core Monitoring

During fuel removal two channels of the SRM's, each on separate power supplies, shall be operable.

For a SRM to be considered operable, the following conditions must be satisfied:

1. The SRM shall be fully inserted into the core.

## 4.10 CORE ALTERATIONS

### Applicability

Applies to the periodic verification of rod position and testing of instrumentation used during fuel removal.

### Objective

To verify full insertion of control rods and operability of instrumentation during fuel removal.

### Specification

#### A. Reactivity Control

1. Surveillance to verify full insertion of all control rods is specified in 4.3.
2. Prior to removing fuel, and daily thereafter, verify that the reactor mode switch is locked in the "SHUTDOWN" position.

#### B. Core Monitoring

Prior to the removal of fuel from the core the SRM's shall be functionally tested and checked for neutron response. Thereafter, while required to be operable, the SRM's will be checked daily for

To prevent an inadvertent or spurious withdrawal of a control rod the directional control valves of each control rod have been electrically disarmed. As a further precaution, the valve in the drive water supply to each hydraulic control unit will be closed. In the unlikely event that a control rod does become withdrawn, two channels of the SRM's are required to be available for visual indication of neutron level. Although the SRM's may not immediately respond to a single rod movement, they would be adequate to monitor the approach to criticality. Also the SRM's are connected in the non-coincidence scram mode to provide rapid rod insertion from a high-high count rate on either SRM. Additionally, a manual scram will also be available. To assure that the control rods can be scrammed, the control rod accumulators are required to be charged with nitrogen and water pressure and a control rod drive pump is required to be in service. To provide additional indication of a control rod withdrawal, the control rod position indicator full-in switches will be functional for every control rod and will provide indication in the control room except, when the reactor vessel head is bolted in place, the control rod position may be verified to be full-in by a continuity check of the full-in limit switch at the local panel. Prior to unbolting the reactor vessel head, circuitry will be provided to permit continuous monitoring in the control room of continuity through the full-in limit switches when normal indication is not available. The circuitry will be testable and will provide a light and audible alarm in the control room to assure operator attention should any one rod be moved from the fully inserted position. Once the fuel is removed from the reactor vessel, the control of reactivity is assured by the design of the spent fuel storage pool as described in FSAR, Chapter 10, Subsection 3.

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Specification 3.3 is not applicable when only one fuel assembly is in the reactor since one fuel assembly is an always safe geometry.



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.10  
License No. DPR-52

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (the licensee) dated July 17, 1975, 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; and
  - 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.
2. Accordingly, the license is amended by a change 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, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 13."

3. This license amendment is effective as of July 17, 1975.

FOR THE NUCLEAR REGULATORY COMMISSION

*Thomas V. Wrensch*

*for*

Robert A. Purple, Chief  
Operating Reactors Branch #1  
Division of Reactor Licensing

Attachment:  
Change No. 13 to Technical  
Specifications

Date of Issuance: August 15, 1975

ATTACHMENT TO LICENSE AMENDMENT NO. 13 TO LICENSE NO. DPR-33

AND LICENSE AMENDMENT NO. 10 TO LICENSE NO. DPR-52

(CHANGE NO. 13 TO THE TECHNICAL SPECIFICATIONS)

DOCKET NOS. 50-259 AND 50-260

Revise Appendix A as follows:

Remove pages 108, 115 and 252.

Insert revised pages 108, 115, and 252.

REACTIVITY CONTROL

Applicability

Applies to the operational status of the control rod system.

Objective

To assure the ability of the control rod system to control reactivity while fuel is in the reactor vessel.

Specification

13 | While more than one fuel assembly is in the reactor vessel, the requirements of 3.3.A through 3.3.G shall be met.

- A. All control rods shall be inserted in the full-in position.
- B. The directional control valves shall be disarmed electrically for all control rods.
- C. The manual valves in the drive water supply shall be in the shut position to prohibit rod movement.
- D. The control rod accumulators shall be charged.
- E. Two SRM channels shall be functional.
- F. One control rod drive pump shall be in service.

4.3 REACTIVITY CONTROL

Applicability

Applies to the surveillance requirements of the control rod system.

Objective

To verify the ability of the control rod system to control reactivity.

Specification

- A. Control rod position shall be verified in accordance with Table 4.2.A.
- B. Each directional control valve shall be verified to be electrically disarmed at intervals not to exceed once every 3 days.
- C. The drive water supply valve (85-593) to each hydraulic control unit shall be verified closed and the water supply valves (85-612, 85-613) to each shall be verified open at intervals not to exceed once every 3 days.
- D. The accumulator pressure shall be checked once a day.
- E. The count rate shall be recorded once each shift.
- F. The control rod drive pump discharge pressure shall be checked once per shift.

10 CORE ALTERATIONS

Applicability

Applies to the removal of fuel from the reactor pressure vessel.

Objective

To prevent criticality during the removal of fuel from the reactor pressure vessel.

Specification

A. Reactivity Control

1. The reactor shall be kept in cold shutdown and all control rods fully inserted during fuel removal while more than one fuel assembly is in the reactor.
2. The reactor mode switch shall be locked in the "SHUTDOWN" position during fuel removal while more than one fuel assembly is in the reactor vessel.

B. Core Monitoring

During fuel removal two channels of the SRM's, each on separate power supplies, shall be operable.

For a SRM to be considered operable, the following conditions must be satisfied:

1. The SRM shall be fully inserted into the core.

4.10 CORE ALTERATIONS

Applicability

Applies to the periodic verification of rod position and testing of instrumentation used during fuel removal.

Objective

To verify full insertion of control rods and operability of instrumentation during fuel removal.

Specification

A. Reactivity Control

1. Surveillance to verify full insertion of all control rods is specified in 4.3.
2. Prior to removing fuel, and daily thereafter, verify that the reactor mode switch is locked in the "SHUTDOWN" position.

B. Core Monitoring

Prior to the removal of fuel from the core the SRM's shall be functionally tested and checked for neutron response. Thereafter, while required to be operable, the SRM's will be checked daily for

13

To prevent an inadvertent or spurious withdrawal of a control rod the directional control valves of each control rod have been electrically disarmed. As a further precaution, the valve in the drive water supply to each hydraulic control unit will be closed. In the unlikely event that a control rod does become withdrawn, two channels of the SRM's are required to be available for visual indication of neutron level. Although the SRM's may not immediately respond to a single rod movement, they would be adequate to monitor the approach to criticality. Also the SRM's are connected in the non-coincidence scram mode to provide rapid rod insertion from a high-high count rate on either SRM. Additionally, a manual scram will also be available. To assure that the control rods can be scrambled, the control rod accumulators are required to be charged with nitrogen and water pressure and a control rod drive pump is required to be in service. To provide additional indication of a control rod withdrawal, the control rod position indicator full-in switches will be functional for every control rod and will provide indication in the control room except, when the reactor vessel head is bolted in place, the control rod position may be verified to be full-in by a continuity check of the full-in limit switch at the local panel. Prior to unbolting the reactor vessel head, circuitry will be provided to permit continuous monitoring in the control room of continuity through the full-in limit switches when normal indication is not available. The circuitry will be testable and will provide a light and audible alarm in the control room to assure operator attention should any one rod be moved from the fully inserted position. Once the fuel is removed from the reactor vessel, the control of reactivity is assured by the design of the spent fuel storage pool as described in FSAR, Chapter 10, Subsection 3.

13 | Specification 3.3 is not applicable when only one fuel assembly is in the reactor since one fuel assembly is an always safe geometry.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 13 TO THE FACILITY LICENSE DPR-33

AND AMENDMENT NO. 10 TO FACILITY LICENSE NO. DPR-52

(CHANGE NO. 13 TO TECHNICAL SPECIFICATIONS)

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR POWER PLANT, UNITS 1 & 2

DOCKET NOS. 50-259 AND 50-260

Introduction

By telephone call on July 17, 1975 and letter dated July 17, 1975, Tennessee Valley Authority (TVA) requested amendments to licenses DPR-33 and DPR-52 to change the Technical Specifications to allow control rod movement with one fuel assembly in the core. Telephoned authorization for the change was given on July 17, 1975, and the authorization was confirmed by letter dated July 17, 1975 from the Nuclear Regulatory Commission (NRC) to TVA.

Discussion

TVA had removed all but one fuel assembly from Browns Ferry Unit 2. That remaining fuel assembly was stuck. TVA wanted to withdraw the control rod adjacent to the stuck fuel assembly to provide better visibility and access to the assembly. The Interim Technical Specifications issued on June 13, 1975, specified that all control rods had to be fully inserted while there was fuel in the reactor. In order to ensure that they remained fully inserted, the Specifications also required that the directional control valves be disarmed electrically, that the manual valves in the drive water supply be in the shut position, and that the reactor mode switch be locked in the "Shutdown" position. TVA requested that these requirements be removed with only one fuel assembly in the reactor vessel.

Evaluation

The intent of the above specifications is to prevent criticality from occurring. Since a single fuel assembly, in the absence of other fuel, is never a critical geometry, the specifications are not needed to protect against criticality. In fact, withdrawing the adjacent control rod from alongside the final fuel assembly has the identical reactivity effect of

lifting the final fuel assembly out of the core away from the fully inserted control rod. Therefore, this change involves no reduction in any margin of safety and no increase in probability of occurrence or consequences of any accident.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does 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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: August 15, 1975



UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 50-259 AND 50-260

TENNESSEE VALLEY AUTHORITY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES

Notice is hereby given that the U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 13 to Facility Operating License No. DPR-33 and Amendment No. 10 to Facility Operating License No. DPR-52 issued to Tennessee Valley Authority which revised Technical Specifications for operation of the Browns Ferry Nuclear Plant, Units 1 and 2, located in Limestone County, Alabama. The amendments are effective as of July 17, 1975.

The amendments revise the Technical Specifications to allow control rod movement with one fuel assembly in the core.

The application for these 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 1, which are set forth in the license amendments. Prior public notice of these amendments is not required since the amendments do not involve a significant hazards consideration.

For further details with respect to this action, see (1) the application for amendment dated July 17, 1975, (2) Amendment No. 13 to License No. DPR-33 and Amendment No. 10 to License No. DPR-52 with Change No. 13, 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 Reactor Licensing.

Dated at Bethesda, Maryland, this 15th day of August 1975.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas V. Wambach, Acting Chief  
Operating Reactors Branch #1  
Division of Reactor Licensing