

Docket file

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

March 11, 1975

Docket Nos. 50-259
and 50-260

Tennessee Valley Authority
ATTN: Mr. James E. Watson
Manager of Power
818 Power Building
Chattanooga, Tennessee 37401

Gentlemen:

The Nuclear Regulatory Commission has issued Amendment No. 7 to License No. DPR-33 and Amendment No. 4 to License No. DPR-52 (copies enclosed) for the Browns Ferry Nuclear Plant Units 1 and 2, respectively, based on change No. 8 to the Technical Specifications.

Amendment No. 7 to (Unit 1) License No. DPR-33 and Amendment No. 4 to (Unit 2) License No. DPR-52 provide for the following changes:

- (1) A change in the power level above which operable control rods must be exercised weekly.
- (2) A change in the power level to which the Intermediate Range Monitor (IRM) is calibrated on controlled shutdowns.
- (3) Combining sub-sections 3.8.A.3.a and 3.8.A.3.b of the Technical Specifications into one sub-section 3.8.A.3.a.
- (4) The addition of a footnote to page 136 of the Technical Specifications which would permit substitution of Residual Heat Removal Service Water (RHRSW) pump A3 for A1 and RSRSW pump C3 for C1.

Changes 1 through 4 above are in connection with your requests dated September 20, 1974, December 13, 1974, December 17, 1974, and January 14, 1975, respectively.

Copies of the related Safety Evaluation and notice, which is being forwarded to the Office of the Federal Register for publication, are enclosed for your information.

Sincerely,



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



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(1)

A.

March 11, 1975

Enclosures:

1. Amendment No. 7 to (Unit 1)
License No. DPR-33
2. Amendment No. 4 to (Unit 2)
License No. DPR-52
3. Change No. 8 to the
Technical Specifications
4. Federal Register Notice
5. Safety Evaluation

cc: Mr. Robert H. Marquis
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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 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 7
License No. DPR-33

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment by Tennessee Valley Authority (the licensee) dated September 20, 1974, December 13, 1974, December 17, 1974, and January 14, 1975, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended, 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. 8."



3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Karl R. Goller

Karl R. Goller, Assistant Director
for Operating Reactors
Division of Reactor Licensing

Attachment:
Change No. 8 to
Technical Specifications

Date of Issuance: March 11, 1975

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. 4
License No. DPR-52

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment by Tennessee Valley Authority (the licensee) dated September 20, 1974, December 13, 1974, December 17, 1974, and January 14, 1975, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended, 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. 8."



3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Karl R. Goller

Karl R. Goller, Assistant Director
for Operating Reactors
Division of Reactor Licensing

Attachment:
Change No. 8 to
Technical Specifications

Date of Issuance: March 11, 1975

ATTACHMENT A

CHANGE NO. 8 TO THE TECHNICAL SPECIFICATIONS (APPENDIX A)

TENNESSEE VALLEY AUTHORITY

DOCKET NOS. 50-259 AND 50-260

Remove Page No.

41
108
136
137
218

Replace With New Page No.

41
108
136
137
218

3.3 REACTIVITY CONTROLApplicability:

Applies to the operational status of the control rod system.

Objective:

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

Specification:A. Reactivity Limitations1. Reactivity margin - core loading

A sufficient number of control rods shall be operable so that the core could be made subcritical in the most reactive condition during the operating cycle with the strongest control rod fully withdrawn and all other operable control rods fully inserted.

2. Reactivity margin - inoperable control rods

- a. Control rod drives which cannot be moved with control rod drive pressure shall be considered inoperable.
- b. The control rod directional control valves for inoperable control rods shall be disarmed electrically.

4.3 REACTIVITY CONTROLApplicability:

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. Reactivity Limitations1. Reactivity margin - core loading

Sufficient control rods shall be withdrawn following a refueling outage when core alterations were performed to demonstrate with a margin of 0.38% Δ k/k the core can be made subcritical at any time in the subsequent fuel cycle with the analytically determined strongest operable control rod fully withdrawn and all other operable rods fully inserted.

2. Reactivity margin - inoperable control rods

- a. Each partially or fully withdrawn operable control rod shall be exercised one notch at least once each week when operating above 30% power. In the event power operation is continuing with three or more inoperable control rods, this test shall be performed at least once each day, when operating above 30% power.

NOTES FOR TABLE 4.1.B

1. A description of three groups is included in the bases of this specification.
2. Calibrations are not required when the systems are not required to be operable or are tripped. If calibrations are missed, they shall be performed prior to returning the system to an operable status.
3. The current source provides an instrument channel alignment. Calibration using a radiation source shall be made each refueling outage.
4. Maximum frequency required is once per week.
5. Physical inspection and actuation of these position switches will be performed once per operating cycle.
6. On controlled shutdowns, the IRM reading will be set such that 120/125 of full scale on range 9 will be set equal to or less than 15% of rated power.
7. The Flow Bias Signal Calibration will consist of calibrating the sensors, flow converters, and signal offset networks during each operating cycle. The instrumentation is an analog type with redundant flow signals that can be compared. The flow comparator trip and upscale will be functionally tested according to Table 4.2.C to ensure the proper operating during the operating cycle. Refer to 4.1 Bases for further explanation of calibration frequency.

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.C RHR Service Water System and
Emergency Equipment Cooling
Water System (EECWS)

must be operable, with 4
aligned to RHR header service.

2. During power operation, one automatically starting pump (A1*, B1, C1*, D1 pumps) may be inoperable indefinitely.
3. During power operation, two automatically starting pumps may be inoperable for an allowable repair time of 30 days.
4. During power operation, three automatically starting pumps may be inoperable for a period of 7 days.
5. During power operation, one RHRSW pump normally assigned to RHR header service (A2, B2, C2, D2 pumps) may be inoperable for a period of 30 days.

4.5.C RHR Service Water System and
Emergency Equipment Cooling
Water System (EECWS)

service on the EECW headers will be tested automatically each time the diesel generators are tested. Each of the eight RHRSW pumps and all associated essential control valves for the EECW headers and RHR heat exchanger headers shall be demonstrated to be operable once every three months.

- b. Annually each RHRSW pump shall be flow-rate tested. To be considered operable, each pump shall pump at least 4,500 gpm through an RHR heat exchanger.
2. If only one of the A1*, B1, C1*, D1 pumps is inoperable, increased surveillance is not required.
3. When two of the A1*, B1, C1*, D1 pumps are inoperable, the remaining pumps, associated essential control valves, and associated diesel generators shall be operated weekly.
4. When three of the A1*, B1, C1*, D1 pumps are inoperable, all remaining RHRSW pumps, associated essential control valves, and associated diesel generators shall be operated daily.
5. When one of the A2, B2, C2, D2 pumps is inoperable, the remaining pumps, associated essential control valves, and associated diesel generators shall be operated weekly.

*At such time as pumps A3 and C3 are installed into the system, tested, and ready for operation, pumps A3 and C3 will replace pumps A1 and C1 respectively.

LIMITING CONDITIONS FOR OPERATION

3.5.C RHR Service Water System and
Emergency Equipment Cooling
Water System (EECWS)

6. During power operation, two of the A2, B2, C2, D2 pumps may be inoperable for 7 days.
7. During power operation, both RHRSW pumps (D1 and D2) normally or alternately assigned to the RHR heat exchanger header supplying the standby coolant supply connection must be operable; except as specified in 3.5.C.8 below.
8. One of the D1 or D2 RHRSW pumps may be inoperable for a period not to exceed 30 days provided the operable pump is aligned to supply the RHR heat exchanger header and the associated diesel generator and essential control valves are operable.
9. If specifications 3.5.C.2 through 3.5.C.8 are not met, an orderly shutdown shall be initiated and the units placed in the cold shutdown condition within 24 hours

SURVEILLANCE REQUIREMENTS

4.5.C RHR Service Water System and
Emergency Equipment Cooling
Water System (EECWS)

6. When two of the A2, B2, C2, D2 pumps are inoperable all remaining operable RHRSW pumps, essential control valves, and associated diesel generators shall be operated daily.
7. Routine surveillance for these pumps is specified in 4.5.C.1.
8. When it is determined that the D1 or D2 RHRSW pump is inoperable at a time when operability is required, the operable RHRSW pump on the same header and its associated diesel generator and the RHR heat exchanger header and associated essential control valves shall be demonstrated to be operable immediately and every 15 days thereafter.

LIMITING CONDITIONS FOR OPERATIONSURVEILLANCE REQUIREMENTS3.8.A Liquid Effluents

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- a. Liquid waste activity and flow rate shall be continuously monitored and recorded during release, and the effluent control monitor shall be set to alarm and automatically close the waste discharge valve before exceeding the limits specified in 3.8.A.1 above. If this requirement cannot be met, continued release of liquid effluents shall be permitted only during the succeeding 48 hours provided that, during this 48-hour period, two independent samples of each tank shall be analyzed and two station personnel shall independently check valving before the discharge.
4. The system as designed to process liquid radwastes shall be maintained and shall be operated to process, liquid radwaste prior to their discharge when it appears that the projected cumulative discharge will exceed 1.25 curies during any calendar quarter.
5. The maximum activity to be contained in one liquid radwaste tank that can be discharged directly to the environs shall not exceed 10 curies.

B. Airborne Effluents

1. The release rate for gross activity except for I-131 and particulates with half-lives longer than eight days, shall not exceed:

4.8.A Liquid Effluents

4. The liquid effluent radiation monitor shall be calibrated at least quarterly by means of a known radioactive source. Each monitor, as described, shall also have an instrument channel test monthly and a sensor check daily.
5. The performance of automatic isolation valves and discharge tank selection valves shall be checked annually.

B. Airborne Effluents

1. The gross β, γ and particulate activity of gaseous wastes released to the environment shall be monitored and recorded:

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. 7 to Facility Operating License No. DPR-33 and Amendment No. 4 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 their date of issuance.

The amendments permit (1) a change in the power level above which operable control rods must be exercised weekly, (2) a change in the power level to which the Intermediate Range Monitor is calibrated on controlled shutdowns, (3) combining sub-sections 3.8.A.3.a and 3.8.A.3.b of the Technical Specifications into one sub-section 3.8.A.3.a, and (4) the addition of a footnote to page 136 of the Technical Specifications which would permit substitution of Residual Heat Removal Service Water (RHRSW) pump A3 for A1 and RSRSW pump C3 for C1.

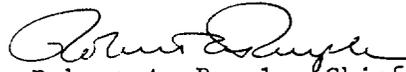
The applications for these amendments comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR 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 applications for amendments dated September 20, 1974, December 13, 1974, December 17, 1974, and January 14, 1975, (2) Amendment No. 7 to License No. DPR-33 and Amendment No. 4 to License No. DPR-52 with any attachments, 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, N. W., 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 11th day of March, 1975.

FOR THE NUCLEAR REGULATORY COMMISSION



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

SAFETY EVALUATION

BY THE

OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 7 TO DPR-33

AND AMENDMENT NO. 4 TO DPR-52

CHANGE NO. 8 TO THE TECHNICAL SPECIFICATIONS

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-259 AND 50-260

Introduction

By letter dated September 20, 1974, December 13, 1974, December 17, 1974 and January 14, 1975, Tennessee Valley Authority (TVA) requested changes to the Technical Specifications of the Browns Ferry Nuclear Plant, Units 1 and 2. The changes requested in these letters were:

- (1) A change in the power level above which all operable control rods must be exercised weekly.
- (2) A change in the power level to which the Intermediate Range Monitor (IRM) is calibrated on controlled shutdowns.
- (3) Combining sub-sections 3.8.A.3.a and 3.8.A.3.b of the Technical Specifications into one sub-section 3.8.A.3.a.
- (4) The addition of a footnote to page 136 of the Technical Specifications which would permit substitution of Residual Heat Removal Service Water (RHRSW) pump A3 for A1 and RSRWS pump C3 for C1.

Discussion

Reactivity Margin - Inoperable Control Rods - Units 1 and 2

The proposed change in the TVA letter of September 20, 1974 would change Section 4.3.A.2, page 108, of the Technical Specifications for Browns Ferry Nuclear Plant, Units 1 and 2. Presently, the Technical Specifications require that all operable control rods be exercised one notch at least once per week when the unit or units are operated above 20% rated power. The Browns Ferry Nuclear Plant, Units 1 and 2, are equipped with a Rod Sequence Control System, designed to restrict the movement of certain groups of control rods below 30% power. Since some of the control rods are restricted from movement below 30% power, the reactor cannot be operated in the power range 20%-30% for periods exceeding one week, and still meet the plant Technical Specifications requirements of weekly exercise of all operable control rods.

This change merely corrects an earlier oversight in the Technical Specifications and makes Section 4.3.A.2 of the Technical Specification consistent with page 116 which notes that the single notch exercise is only performed above the 30 percent power level. The staff concludes that increasing the power level, above which control rods must be exercised, to 30% will not decrease the effectiveness of the testing requirements for operable control rods.

Intermediate Range Monitor

The proposed change in the TVA letter dated December 13, 1974, would change the power level to which the Intermediate Range Monitor is calibrated during controlled shutdowns. Note 6 on page 41 of the present Browns Ferry Technical Specifications reads as follows:

"On controlled shutdowns, the IRM reading 120/125 of full scale on scale 10 will be set equal to or less than 30% of rated power."

The proposed change would have Note 6 to read:

"On controlled shutdowns, the IRM reading will be set such that 120/125 of full scale on range 9 will be set equal to or less than 15% of rated power."

This footnote change was overlooked when the APRM startup mode scram at 15% power was added to the design and incorporated into the Technical Specifications. The change in calibration point has no safety significance since it only changes the absolute value of the IRM full scale setting. The calibration is made to assure continued monitoring of flux levels below the power range covered by the APRM. Calibration at 15% power or less corresponding to 120/125 of full scale on range 9 is an operating convenience.

The change will also make Note 6 on page 41 consistent with Section 2.1.A Bases, pages 21 and 22; Section 3.1 Bases, pages 43 and 44. The staff concludes that the above change will not decrease the level of safety at the Browns Ferry Nuclear Plant Units 1 and 2.

Liquid Effluents

The proposed change in the TVA letter of December 17, 1974 would incorporate sub-sections 3.8.A.3.a and 3.8.A.3.b into a new sub-section 3.8.A.3.a. This change neither adds to nor deletes from any requirements of the Technical Specifications. Since the change merely involves combining two sub-sections of the Technical Specifications, the staff concludes the change will not decrease the level of safety at the Browns Ferry Nuclear Plant, Units 1 and 2.

Residual Heat Removal Service Water Pumps

The change requested in the January 14, 1975 letter would substitute Residual Heat Removal Service Water (RHRSW) pump A3 for RHRSW pump A1 and RHRSW pump C3 for RHRSW pump C1. The present configuration, which was only intended as temporary pending completion of construction and testing associated with Unit 3, has two RHRSW pumps (A1 and C1) that are intended to be powered by Unit 3 diesel generators currently powered by Units 1 and 2 diesel generators (DG-A and DG-B). Pumps A3 and C3 were not tied to any DG system. If pumps A1 and C1 are replaced with pumps A3 and C3, then the A3 and C3 pumps can be connected to the proper diesel generators (DG-A and DG-B). This will also free the pumps, A1 and C1, to be connected to the Unit 3 generators (DG-3A and DG-3B), permitting Unit 3 preoperational testing to continue.

Since this change was anticipated and it will allow the RHRSW pumps to be connected in a manner previously approved at the time of Unit 1 and 2 licensing, the staff concludes the change will not affect the safe operation

Conclusion

We have concluded, based on the reasons herein discussed, that because the changes 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 changes do not involve a significant hazards consideration. We also conclude that 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 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: March 11, 1975