

# DOCKET FILE

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JUN 28 1974

Docket No. 50-259

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

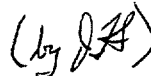
Gentlemen:

The Atomic Energy Commission has issued the enclosed Amendment No. 3 to License No. DPR-33 for Browns Ferry Nuclear Plant, Unit 1. The license amendment has been issued for the purpose of incorporating into the Unit 1 license the Technical Specifications contained in Appendices A and B appended to License No. DPR-52, which authorizes operation of Browns Ferry Nuclear Plant, Unit 2 (Docket No. 50-260). Appendices A and B have been reissued in entirety as Change No. 4 to the original Technical Specifications issued on June 26, 1973. Details relating to the revisions made to the original Technical Specifications are provided in the Commission's Safety Evaluation Report relating to Amendment No. 3 (copy enclosed).

A copy of a related notice, which has been forwarded to the Office of the Federal Register for filing and publication, is enclosed for your information.

Sincerely,

Original signed by  
Voss A. Moore

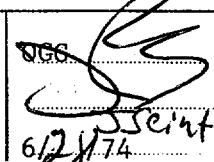
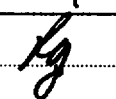


Voss A. Moore, Assistant Director  
for Light Water Reactors, Group 2  
Directorate of Licensing

Enclosures:

1. Amendment No. 3 to License No. DPR-33
2. Safety Evaluation Report
3. Federal Register Notice

cc: (see next page)

OFFICE →	L:LWR 2-1	L:LWR 2-1	L:LWR 2-1	OGG	L:LWR	
SURNAME →	HSmith:ew	RWilliams	JFStall		VAMoore	
DATE →	6/6/74	6/18/74	6/11/74	6/21/74	6/18/74	

JUN 28 1974

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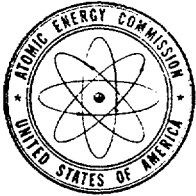
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UNITED STATES  
ATOMIC ENERGY COMMISSION  
WASHINGTON, D.C. 20545

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

(BROWNS FERRY NUCLEAR PLANT, UNIT 1)

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 3  
License No. DPR-33

1. The Atomic Energy Commission (the Commission) having found that:
  - A. The applications for amendment by the Tennessee Valley Authority (the licensee) discussed in the Commission's Safety Evaluation Report 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 1;
  - B. 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
  - C. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.
2. Accordingly, Paragraph 2.C.(2) of Amendment No. 2 to Facility License No. DPR-33 dated December 20, 1973, is hereby amended to read as follows:

"(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, attached to Facility Operating License No. DPR-52, dated June 28, 1974, for Browns Ferry Nuclear Plant, Unit 2 (Docket No. 50-260) which have been reissued in entirety as Change No. 4, are hereby incorporated by reference in this amended license. The licensee shall operate the facility in accordance with the reissued Technical Specifications incorporated herein."

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

FOR THE ATOMIC ENERGY COMMISSION

*Voss A. Moore* by *JS*

Voss A. Moore, Assistant Director  
for Light Water Reactors, Group 2  
Directorate of Licensing

Date of Issuance: JUN 28 1974

SAFETY EVALUATION BY THE DIRECTORATE OF LICENSING

SUPPORTING AMENDMENT NO. 3 TO DPR-33

(CHANGE NO. 4 TO APPENDIX A OF TECHNICAL SPECIFICATIONS)

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT UNIT NO. 1

DOCKET NO. 50-259

ISSUANCE DATE: **JUN 28 1974**

## Introduction

By letters dated as follows, Tennessee Valley Authority (TVA) requested changes to Appendix A to Facility Operating License DPR-33 (Radiological Technical Specifications):

1. August 29, 1973
2. August 30, 1973
3. August 31, 1973
4. September 13, 1973
5. September 21, 1973
6. October 5, 1973
7. October 30, 1973
8. November 9, 1973
9. November 14, 1973
10. January 18, 1974
11. January 21, 1974
12. January 25, 1974
13. February 25, 1974
14. March 1, 1974
15. March 7, 1974
16. March 18, 1974
17. May 2, 1974
18. May 21, 1974
19. June 7, 1974

Other changes to the Technical Specifications have been proposed and discussed between representatives of TVA and the Regulatory staff over the past year. The need for and causes of these changes are:

- a. Unit 2 is being included in the Technical Specifications.
- b. TVA has gained experience and knowledge during the startup program for Unit 1.
- c. Certain modifications to systems require changes in the Technical Specifications.

- d. The Commission has issued several Regulatory Guides aimed at standardizing facilities.
- e. The staff of TVA and the Commission have found through use that a number of corrections are required for errata and clarification.

In view of the large number and diverse nature of the changes and, in particular, the addition of Unit 2, the Technical Specifications are being reissued in entirety.

#### Evaluation

##### 1. Addition of Unit 2

Unit 2 was added to title page. The Technical Specifications are now a combined set for Units 1 and 2. This required minor changes on many pages in changing "unit" to "units" and "reactor" to "reactors" etc. The only important changes appear on page 158 wherein augmented inspection weld numbers for Unit 2 HPCI differed from those for Unit 1 and had to be spelled out and in Table 6.8.A wherein the minimum crew size was provided for 2 units in operation.

The staff concludes that the changes resulting from the addition of Unit 2 are all acceptable. These changes in no way modify the way that the Technical Specifications apply to Unit 1.

##### 2. Section 1.0 (p. 7)

A definition of cumulative downtime was added to limit the downtime of safety components and systems. This limitation was in response to an ACRS concern as expressed in their letter of December 11, 1973. The staff concludes that a limit on cumulative downtime in addition to existing surveillance requirements during downtime provides sufficient protection against excessive safety component outages.

3. Section 2.2 and 3.6.D/4.6.D

Bases (page 27, 170 and 171)

To insure adequate overpressure protection, TVA proposed a change to the grouping of the nuclear system relief valve setpoints. The change was required because the overall as built response time for the relief function was longer than that used previously in the Browns Ferry FSAR analysis. The Regulatory staff has reviewed the new pressure transient analysis results with the proposed grouping and finds the calculated pressures to be acceptable.

A temporary Technical Specification waiver requested by TVA on September 21, 1973, and approved by the staff, by telephone, on that date, necessitated by as built valve set point tolerances, is no longer required. The waiver had been approved previously on the basis of estimated pressures resulting from transients with two (of a total of eleven) relief valves out of the required  $\pm 1\%$  tolerance. As indicated in TVA's letter of March 18, 1974, all valves out of tolerance have been replaced with valves in tolerance.

4. Sections 3.1 and 3.2 (pages 33, 43, 54, and 100)

In Tables 3.1.A and 3.2.A the scram and Main Steamline Isolation Valve closure set points, respectively, for Main Steamline High Radiation have been revised. The new set point for each is  $\leq 3X$  normal full power background (vice the old  $\leq 6X$  normal full power background). In addition, an alarm is provided set nominally at  $1.5X$  normal full power background.

The lower (more conservative) set point is considered, by the



Regulatory staff, to provide protective action at a level more likely to be reached in the event of gross fuel failure. The set point is considered to be sufficiently above the operating range to preclude spurious scram and/or isolation signals.

5. Section 3.2.D (page 52)

This section provides the isolation requirements in the event that both off-gas system radiation monitors are lost. The original specification required MSIV closure. The change permits either MSIV closure or isolation of the off-gas system at the steam jet air ejectors. This permits opening the MSIV's when the reactor is in the shutdown condition without having to operate the off-gas system radiation monitors, thus providing flexibility during certain maintenance operations.

Since the automatic function of the off-gas radiation monitors is to isolate the off-gas system at the steam jet air ejectors and since the requirements for stack monitoring are unaffected, the staff concludes that the change is acceptable.

6. Section 3.2/4.2 (pages 55, 81)

In Tables 3.2.A and 4.2.A changes were proposed to reflect the actual Browns Ferry design.

One revision reflects a design change to the Browns Ferry plant deleting the Main Steamline Isolation Valve closure on high reactor water level in the Startup/Hot Standby Mode. Transient analyses indicate that this isolation function is not required for GE-designed boiling water reactors like Browns Ferry having less than 40% turbine bypass capacity. TVA states that the thermal transients initiated by

hypothetical steam pressure regulator failures resulting in the opening of all bypass valves are acceptable without this isolation function. On the basis of our review we find the change acceptable.

7. Table 3.2.B (p. 64)

The installed instrument piping for the pressure switch monitoring the integrity of the core spray piping between the pressure vessel and core shroud contained water legs which exceeded the switch capability, thereby causing a constant downscale indication.

TVA requested authorization for temporary changes involving reversal of the sensing lines and reducing the alarm set point from 5 psid  $\pm$  1.5 to 2 psid  $\pm$  0.4. The staff approved the changes on the basis that they would provide continuous monitoring and an alarm function at a setting which would conservatively detect any significant loss of integrity of core spray piping between the pressure vessel and core shroud.

The staff concludes that these changes provide adequate protection. TVA has not requested a permanent change to date on the basis that monitoring of the instrumentation would permit further evaluation of the pressure drop functions prior to establishing a permanent change.

8. Section 3.2, Table 3.2.E (p. 76)

Changes to the setpoints on the timers for the Drywell Equipment and Drywell Floor Drain Sumps were requested on August 30, 1973, and March 7, 1974. These change requests were based on preoperational test data. TVA now advises that the 150 gpm sump pumps will be throttled to 50 gpm in order to comply with the FSAR and to provide for more accurate determination of leakage. The staff concurs with this change and the Technical Specifications will provide for 50 gpm set

points for Unit 2 and 150 gpm and 50 gpm points for Unit 1 since throttling of the Unit 1 pump will not take place until a future outage.

9. Table 3.2.G (page 79)

Any signal which isolates the primary containment also isolates the control room and initiates the emergency pressurization system. In addition, control room air supply monitors are provided to perform the isolation and pressurization functions upon detection of radiation levels corresponding to about 1 m Rem/hr. TVA now estimates the corresponding trip level to be 270 cpm above background instead of 79 cpm as originally proposed.

The staff concludes that this change is acceptable.

10. Section 3.3/4.3 (pages 109, 110, 111, 112, 116, 117)

A change has been made on page 109 to provide for shutdown margin testing following determination of an inoperable control rod.

Requirements for operability of the Rod Sequence Control System (RSCS) and Rod Worth Minimizer (RWM) have been revised from below 30% power to below 20% power. This is in agreement with analyses which indicate acceptable consequences for postulated control rod drop accidents initiated above 20% rated power. In order to account for inaccuracies the nominal setting for the instrument which bypasses the RSCS is 30%.

The RSCS functional testing requirements are now different for Units 1 and 2 since Unit 2 incorporates the Group Notch system. These requirements are provided on pages 110 and 111. Also, as a result of these differences, Section 3.3.B.b was added on page 111 for Unit 2 to require group alignment prior to testing between 35% and 30% power

during power descents with no subsequent rod movement prior to automatic reinstatement of RSCS restraints.

Scram insertion testing has been revised on page 112 in order to increase the power level by which all rods must be tested, to limit rods tested below 20% power to those rods in fully withdrawn sequences and to require RWM and RSCS operability for scram time testing below 20% power.

Based on its evaluation described in Supplement No. 6 to the Safety Evaluation Report, the staff concludes that the changes noted are acceptable.

11. Section 3.7 (pages 175, 176)

The maximum permissible suppression pool temperature during normal operation has been increased from 90°F to 95°F. This change is necessary in consideration of closed cycle cooling operation where the cooling towers are placed in service. TVA has analyzed the effect of the temperature increase on condensation capability and long term cooling.

The staff concludes that the change is acceptable. Complete condensation of discharged steam up to the design basis loss of coolant accident will occur with suppression pool temperatures up to 170°F and this temperature will not be exceeded if the initial torus water temperature is below 130°F. Long term cooling has been shown to be adequate with initial 95°F torus and cooling water temperatures because analysis indicates no dependency on containment overpressure to meet RHR and core spray pump NPSH requirements.

12. Section 3.8.E/4.8.E (page 227, 239, 274, 275, 280)

Commission policy is now to issue operating licenses with broad possession and use limits on radioactive material. The Unit 2 license will contain these broad possession and use limits.

In order to assure that leakage from byproduct, source, and special nuclear radioactive material sources does not exceed allowable limits we have provided Technical Specification limits and surveillance requirements. In addition Section 6.6 requires that records be maintained concerning source leakage tests and inventories of radioactive materials. Section 6.7 contains reporting requirements for leak tests revealing the presence of 0.005 microcurie or more of removable contamination. The staff concludes that these specifications provide reasonable assurance against excessive source leakage. Since the Technical Specifications are now combined for Units 1 and 2 the new surveillance requirements also apply to Unit 1.

13. Section 6.2.B (page 267)

The duties and responsibilities of the Plant Operations Review Committee (PORC) have been expanded to include review of employee training programs. In addition the distribution of PORC meeting minutes has been expanded.

The staff concludes that the importance of employee training justifies review and concurs with this change.

14. Section 6.7 (pages 276 through 282.a)

Extensive changes have been made in the Reporting Requirements Section to upgrade it in accordance with Regulatory Guide 1.16. The submission requirements for the Startup and First Year Operation Reports are clarified. The dates for submission of the Semi-annual Operating Reports are now in agreement with all plants and the content has been expanded to include information concerning Primary Coolant

Chemistry and Occupational Personnel Radiation Exposure.

The Radiological Environmental Monitoring reporting requirements have been upgraded to provide conformance to the staff's current requirements on anomalous measurements and milk pathway measurements.

The staff concludes that the upgraded reporting requirements will now assure data which is consistent with that provided on other facilities and will provide for adequate monitoring of the environment.

15. Section 3.6.G.2

Section 3.6.G.2 has been added to the Technical Specifications to require completion of those Unit 2 modifications required to provide full protection against high energy pipe breaks outside of containment. Those modifications listed in TVA document "Concluding Report on the Effects of Postulated Pipe Failure Outside of Containment for the Browns Ferry Nuclear Plant Units 2 and 3" and related to Unit 2 shall be completed prior to startup following the first refueling outage. The complete safety evaluation on this subject is contained in Supplement 6 to the SER.

16. Miscellaneous Changes - Errata

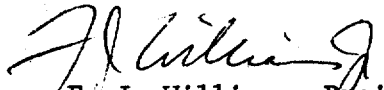
- a. The nuclear system high pressure trip setting should have been 1055 psig rather than 1070 psig. Analyses of transients and accidents are based on 1055 psig. This change occurs on pages 3, 4, 27, 33, 34, 35.
- b. The pressure setting on page 10 for loss of control oil was corrected to greater than rather than less than.
- c. The pressures appearing on Figure 1.1-1 page 12 have been changed to absolute rather than gage.

- d. The greater than was added to the low reactor water level setting in Table 3.1.A. It had been inadvertently omitted.
- e. Penetration X-213B has been removed from Table 3.7.B since it does not have double O-ring seals. This penetration leads to construction drain valve 74-722 and a blind flange. Valve 74-722 has, therefore, been listed under Table 3.7.D as a testable containment isolation valve.
- f. The test medium for valves 77-2A, 77-2B, 77-15A and 77-15B has been changed from air to water. These lines contain water and were tested with water.
- g. Electrical penetration X-101C has been added to Table 3.7.H. It was inadvertently omitted.
- h. An entry in the Table 3.2.A "Remarks" column has been revised for the Reactor Building Ventilation High Radiation - Refueling Zone. The Specification now lists the correct functions as described in the FSAR. The Regulatory staff concludes that this represents no unreviewed safety question and is acceptable.

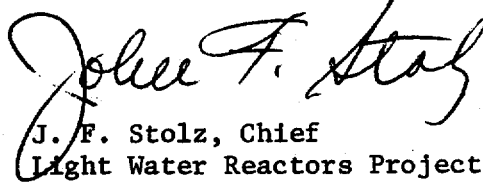
#### CONCLUSION

Based on the foregoing evaluation, the staff concludes that the revised Technical Specifications do not involve a significant hazards consideration since the changes did not involve a safety consideration of a type or magnitude not previously considered for the Browns Ferry Nuclear Plant, did not involve a substantial increase in the probability or consequences of accidents previously considered, and does not involve a

substantial decrease in the margin of safety during normal plant operation, anticipated operational occurrences, or postulated accidents previously considered. There is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner.



F. J. Williams, Project Manager  
Light Water Reactors Project Branch 2-1  
Directorate of Licensing



J. F. Stolz, Chief  
Light Water Reactors Project Branch 2-1  
Directorate of Licensing



UNITED STATES ATOMIC ENERGY COMMISSION

DOCKET NO. 50-259

TENNESSEE VALLEY AUTHORITY

(BROWNS FERRY NUCLEAR PLANT, UNIT 1)

NOTICE OF ISSUANCE OF FACILITY LICENSE AMENDMENT

Notice is hereby given that the U. S. Atomic Energy Commission (the Commission) has issued Amendment No. 3 to Facility Operating License No. DPR-33 to the Tennessee Valley Authority for operation of the Browns Ferry Nuclear Plant, Unit 1, located in Limestone County, Alabama.

The amendment, which is effective as of its date of issuance, revises paragraph 2.C.(2) of Amendment No. 2 to Facility Operating License No. DPR-33 for the purpose of incorporating the Technical Specifications contained in Appendices A and B, reissued in entirety as Change No. 4, which are attached to Facility Operating License No. DPR-52, dated June 28, 1974, for Browns Ferry Nuclear Plant, Unit 2 (Docket No. 50-260).

The applications for amendment comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations and 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 amendment.

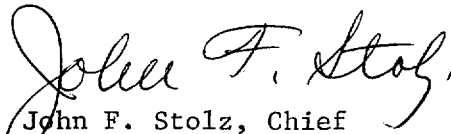
For further details with respect to this action, see (1) the applications for amendment discussed in Item (4) below; (2) Amendment No. 3 to License DPR-33; (3) Facility Operating License No. DPR-52 (Docket No. 50-260) and the Technical Specifications (Appendices A and B) attached thereto; and (4) the Commission's Safety Evaluation for Amendment No. 3. All of these are

available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. 20545; and at the Athens Public Library, South and Forrest, Athens, Alabama 35611.

A copy of items (2), (3) and (4) may be obtained upon request addressed to the United States Atomic Energy Commission, Washington, D. C. 20545, Attention: Deputy Director for Reactor Projects, Directorate of Licensing - Regulation.

Dated at Bethesda, Maryland, this 28<sup>th</sup> day of June, 1974.

FOR THE ATOMIC ENERGY COMMISSION



John F. Stolz, Chief  
Light Water Reactors Project Branch 2-1  
Directorate of Licensing