JUN 7 1977

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

Tennessee Valley Authority
ATTN: Mr. Godwin Williams, Jr.
Manager of Power
818 Power Building
Chattanooga, Tennessee 37201

Gentlemen:

The Commission has issued the enclosed Amendment Nos. 30, 27 and 6 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 consist of changes to the Technical Specifications in response to your request of May 23, 1977.

These amendments revise the Environmental Technical Specification 2.1 contained in Appendix B to the licenses. The change would temporarily increase the allowable maximum temperature rise between the 5 foot depth downstream and upstream control points from 5°F to 10°F and temporarily increase the maximum temperature measured at the 5 foot depth of the downstream control point from 86°F to 90°F.

A series of temperature and flow measurements in Wheeler Reservoir are proposed for the summer of 1977. The actual number of days that measurements will be taken will probably not exceed 7 days. However, the measurement period will be over several weeks. The measurements are taken to permit evaluation of the effectiveness of the thermal discharge diffusers. The effectiveness of the diffusers can be better evaluated if a wider range of discharge temperature and temperature rise data exists during the tests than is allowed by the existing Technical Specifications. The maximum mixed temperature rise predicted by calculation for the test program is 5.1°F during one test, but during most of the tests it is expected to be 3°F. The present specification allows a 5°F temperature rise and a maximum discharge water temperature of 86°F. This amendment allows a 10°F ΔT and a maximum discharge water temperature of 90°F during the tests.

The actual plant heating during the tests will undoubtedly be less than the limits allowed under this amendment. However, even if the plant operated at these limits during the entire duration of the tests, we judge that the impact will be negligible because of the short-term nature of the tests. The increased temperature in the area of the discharge will probably result in a few fish leaving this area during the tests, but upon completion of the tests the fish are expected to return. Furthermore,

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The area of the discharge is not a critical area to the biota of the reservoir. We judge these movements to not be of significance to Wheeler Reservoir biota. Thus, this proposed amendment will not change the findings of the FES.

We have determined that the amendments do not authorize a significant 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 the amendments involve an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental impact statement, negative declaration or environmental impact appraisal need not be prepared in connection with the issuance of the amendments.

The diffuser tests do not have safety significance since they are based on normal operation of the plant using the two approved cooling systems (once-through and cooling towers). Thus, the amendments do not involve significant new safety information of a type not considered by a previous Commission safety review of the facility. They do not involve a significant increase in the probability or consequences of an accident, do not involve a significant decrease in a safety margin, and therefore do not involve a significant hazards consideration. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by this action.

A copy of the related Notice of Issuance is also enclosed.

Sincerely,

/S/

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Enclosures:
1. Amendment No. 30 to DPR-33
2. Amendment No. 27 to DPR-52
3. Amendment No. 6 to DPR-68
4. Notice of Issuance

cc w/enclosures:
See next page

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| SURNAME➤ | | | | | | |
| DATE➤ | | | | | | |

cc: H. S. Sanger, Jr., Esquire
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Knoxville, Tennessee 37902

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Athens Public Library
South and Forrest
Athens, Alabama 35611

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State Department of Public Health
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U.S. Environmental Protection Agency
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Atlanta, Georgia 30308

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

June 7, 1977

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

Tennessee Valley Authority
ATTN: Mr. Godwin Williams, Jr.
Manager of Power
818 Power Building
Chattanooga, Tennessee 37201

Gentlemen:

The Commission has issued the enclosed Amendment Nos. 30, 27 and 6 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 consist of changes to the Technical Specifications in response to your request of May 23, 1977.

These amendments revise the Environmental Technical Specification 2.1 contained in Appendix B to the licenses. The change would temporarily increase the allowable maximum temperature rise between the 5 foot depth downstream and upstream control points from 5°F to 10°F and temporarily increase the maximum temperature measured at the 5 foot depth of the downstream control point from 86°F to 90°F.

A series of temperature and flow measurements in Wheeler Reservoir are proposed for the summer of 1977. The actual number of days that measurements will be taken will probably not exceed 7 days. However, the measurement period will be over several weeks. The measurements are taken to permit evaluation of the effectiveness of the thermal discharge diffusers. The effectiveness of the diffusers can be better evaluated if a wider range of discharge temperature and temperature rise data exists during the tests than is allowed by the existing Technical Specifications. The maximum mixed temperature rise predicted by calculation for the test program is 5.1°F during one test, but during most of the tests it is expected to be 3°F. The present specification allows a 5°F temperature rise and a maximum discharge water temperature of 86°F. This amendment allows a 10°F $\Delta T$ and a maximum discharge water temperature of 90°F during the tests.

The actual plant heating during the tests will undoubtedly be less than the limits allowed under this amendment. However, even if the plant operated at these limits during the entire duration of the tests, we judge that the impact will be negligible because of the short-term nature of the tests. The increased temperature in the area of the discharge will probably result in a few fish leaving this area during the tests, but upon completion of the tests the fish are expected to return. Furthermore,

The area of the discharge is not a critical area to the biota of the reservoir. We judge these movements to not be of significance to Wheeler Reservoir biota. Thus, this proposed amendment will not change the findings of the FES.

We have determined that the amendments do not authorize a significant 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 the amendments involve an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental impact statement, negative declaration or environmental impact appraisal need not be prepared in connection with the issuance of the amendments.

The diffuser tests do not have safety significance since they are based on normal operation of the plant using the two approved cooling systems (once-through and cooling towers). Thus, the amendments do not involve significant new safety information of a type not considered by a previous Commission safety review of the facility. They do not involve a significant increase in the probability or consequences of an accident, do not involve a significant decrease in a safety margin, and therefore do not involve a significant hazards consideration. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by this action.

A copy of the related Notice of Issuance is also enclosed.

Sincerely,

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Enclosures:
1. Amendment No. 30 to DPR-33
2. Amendment No. 27 to DPR-52
3. Amendment No. 6 to DPR-68
4. Notice of Issuance

cc w/enclosures:
See next page

cc: H. S. Sanger, Jr., Esquire
General Counsel
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Chief, Energy Systems
Analyses Branch (AW-459)
Office of Radiation Programs
U.S. Environmental Protection Agency
Room 645, East Tower
401 M Street, SW.
Washington, D.C. 20460

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. 30
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 May 23, 1977, 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. 30 , 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

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 7, 1977

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. 27
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 May 23, 1977, 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. 27 , 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

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 7, 1977

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. 6
License No. DPR-68

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated May 23, 1977, 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. 6 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications."

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

FOR THE NUCLEAR REGULATORY COMMISSION

A. Schwencer

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 7, 1977

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 30 TO FACILITY LICENSE NO. DPR-33

AMENDMENT NO. 27 TO FACILITY LICENSE NO. DPR-52

AMENDMENT NO. 6 TO FACILITY LICENSE NO. DPR-68

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

Revise Appendix B as follows:

Remove pages 2 and 3 and replace with identically numbered pages.

## 2.0 LIMITING CONDITIONS FOR OPERATION

### 2.1 THERMAL DISCHARGE LIMITS

Objective

The purpose of this specification is to limit the thermal stress on aquatic life in Wheeler Reservoir by operating Browns Ferry Nuclear Plant so as to meet the applicable water quality temperature standards of the State of Alabama.

Specification

The plant-induced reservoir water temperature at the 5-foot depth at the downstream control point shall not exceed the water temperature measured at the 5-foot depth of the upstream control monitor by more than the applicable maximum temperature rise (currently 5°F*)nor shall the reservoir water temperature measured at the 5-foot depth at the downstream control point exceed the applicable maximum water temperature (currently 86°F*) due to the discharge of the condenser cooling water. If this limiting condition is exceeded, the plant operator shall initiate control measures. The control measures shall be (1) to reduce the waste heat discharged to the reservoir and/or (2) to request modifications in the releases from TVA's Guntersville and/or Wheeler Dams to increase the streamflow by the Browns Ferry plant.

*During a special diffuser performance study during the summer of 1977 (anticipated completion in June, 1977), a maximum temperature rise of 10°F and a maximum water temperature of 90°F, both recorded at the 5-foot depth, will be permitted for a time not to exceed a cumulative total of 7 days.

Monitoring Requirement

The water temperature data collected by the thermal monitoring network is telemetered to the Browns Ferry meteorological station. The meteorological station will receive the data and automatically record the readings every 60 minutes. All temperature data are recorded on paper tape and maintained for record keeping purposes. The 5-foot depth temperature data which are used to prevent exceeding the limiting condition will be transmitted to the control room and will be visually displayed for monitoring purposes. The accuracy of the system and the sensitivity of the thermistor sensors are designed to be ± 0.3°F and 0.01°F, respectively.

Three thermal monitors spaced across the reservoir in the vicinity of river mile 292.5 shall serve as the downstream control. Two monitors located above the plant, one located at about river mile 297.6, and a second located in this vicinity will provide the upstream water temperature data. The system is designed so that the downstream control monitors serve as backup for one another and similarly for the two upstream monitors. The locations of existing temperature monitors are displayed in Figure 2.1-1.

In the event the system described is out of service, an alternate method will be employed three times a day (once each shift) to measure the river temperature at the 5-foot depth in the vicinity of the upstream and downstream control monitors and thus determine the temperature rise and the maximum river water temperature below the plant. When such a method would result in an imminent and substantial endangerment to the safety of personnel, this paragraph shall not apply.

Bases

TVA, as a Federal agency, is required by Section 313 of the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) and by Executive Order 11507, "Prevention, Control and Abatement of Air and Water Pollution at Federal Facilities," to meet applicable Federal, state, and local water quality standards. On July 17, 1972, the State of Alabama adopted and on September 19, 1972, the Environmental Protection Agency

2.1 Continued

approved thermal criteria for surface waters in the State of Alabama. The current applicable thermal standards are to limit the maximum temperature rise above natural temperature before the addition of artificial heat to 5°F and the maximum water temperature to 86°F. In the application of this temperature criteria the temperature shall be measured, in the case of Wheeler Reservoir, at a depth of 5 feet. The higher temperature limits during the special diffuser performance study during the summer of 1977 will be for brief periods and will not adversely affect the environment.

All systems described for thermal discharge limits will be operational prior to any significant discharge of waste heat. The placement of the temperature monitoring instruments shall be such that compliance with water quality criteria will be demonstrated. The placement of the temperature sensors at the 5-foot depth in the waters of Wheeler Reservoir is in accordance with the requirements of the water quality criteria of the State of Alabama. The temperature data is converted to digital data at the station on the reservoir. The transmission, computer storage, and monitoring system is being used at other facilities and has performed accurately and reliably.

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 LICENSES

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 30 to Facility Operating License No. DPR-33, Amendment No. 27 to Facility Operating License No. DPR-52, and Amendment No. 6 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, Unit Nos. 1, 2 & 3, (the facility) located in Limestone County, Alabama. The amendments are effective as of the date of issuance.

These amendments revise the Environmental Technical Specification 2.1 contained in Appendix B to the licenses. The change would temporarily increase the allowable maximum temperature rise between the 5 foot depth downstream and upstream control points from 5°F to 10°F and temporarily increase the maximum temperature measured at the 5 foot depth of the downstream control point from 86°F to 90°F, for the performance of a diffuser study that is anticipated to be completed in June 1977.

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 Commisison'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 May 23, 1977, (2) Amendment No. 30 to License No. DPR-33, Amendment No. 27 to License No. DPR-52, and Amendment No. 6 to License No. DPR-68, and (3) the Commission's letter to the licensee dated June 7, 1977. 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 Operating Reactors.

Dated at Bethesda, Maryland, this 7th day of June 1977.

FOR THE NUCLEAR REGULATORY COMMISSION

A. Schwencer

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors