

*Dockets*

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

JUL 10 1975

Docket Nos.: 50-259 ✓  
and 50-260

Tennessee Valley Authority  
ATTN: Mr. J. E. Gilleland  
Assistant to Manager of Power  
818 Power Building  
Chattanooga, Tennessee 37401

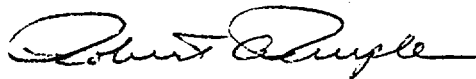
Gentlemen:

The Commission has issued the enclosed Amendment No. 8 to Facility License No. DPR-33 and Amendment No. 5 to Facility License No. DPR-52. These amendments include Change No. 9 to the respective Technical Specifications and are in response to your request dated March 21, 1975.

These amendments incorporate changes to the Appendix B Technical Specifications that allows relocation of the temperature monitor upstream of the plant in order to eliminate measurement of the natural heating and cooling effects in the Wheeler Reservoir and to delete specific location requirements of temperature sensors relating to thermal plume mapping studies.

Copies of the related Negative Declaration, the Environmental Impact Appraisal, and the Federal Register Notice are also enclosed.

Sincerely,



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

Enclosures:

1. Amendment Nos. 8 and 5 to  
Licenses DPR-33 and DPR-52
2. Revised pages to Appendix B
3. Federal Register Notice
4. Environmental Impact Appraisal

cc: See attached sheet



Tennessee Valley Authority

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DIST:

DOCKET FILES (ENVIRON) SKari  
 NRC-PDR WMiller  
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 RVollmer  
 PKreutzer  
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 GDicker  
 SSheppard  
 RPurple  
 TWamback

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SURNAME →	AU/rw <i>MA</i>	Kreutzer <i>MA</i>	Dicker <i>SKB</i>	Muller <i>MA/MA</i>	Kourtellos <i>MA</i>	Purple <i>MA</i>
DATE →	4/30/75	4/25/75	4/1/75	5/1/75	6/19/75	7/9/75

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. 8  
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 March 21, 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:

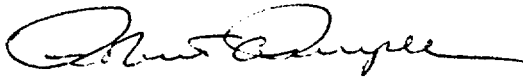
"(2) Technical Specifications

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. 11."



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

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment:  
Change No. 9 to Technical Specifications

Date of Issuance: JUL 10 1975

ATTACHMENT TO LICENSE AMENDMENT NO. 8  
CHANGE NO. 9 TO THE TECHNICAL SPECIFICATIONS  
FACILITY OPERATING LICENSE NO. DPR-33  
TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT UNIT NO. 1  
DOCKET NO. 50-259

Revise Appendix B as follows:

1. Remove pages 2, and 3 and 15 and 16.
2. Insert revised pages 2 and 3 and 15 and 16.

1.0 Definitions

The terms used in these environmental technical specifications are generally accepted terminology and have no particularly unique definition or specific application to the site.

## 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 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. During the interim period until cooling towers are available the control measures shall be (1) to restrict the plant output so as to reduce the waste heat discharged 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.

#### 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

#### 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  $\pm 0.3^{\circ}\text{F}$  and  $0.01^{\circ}\text{F}$ , 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.

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 five-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.

in Wheeler Reservoir will be periodically monitored to assess the overall water quality of Wheeler Reservoir.

(b) Thermal Plume Mapping

Objective

Verify the accuracy of thermal plume models used in predicting environmental effects from the thermal releases from the Browns Ferry plant.

Specification

Water temperature will be monitored at numerous depths from the water surface to the reservoir bottom at various locations in Wheeler Reservoir. | 9  
Data will be used to verify predicted thermal plume models.

4.1.2 Biotic

(a) Benthic Monitoring

Objective

The benthic monitoring program will compare preoperational data with that obtained after Browns Ferry Nuclear Plant begins operation to ascertain if changes have occurred. Benthic organisms generally spend their life cycle in a localized area. Thus, species abundance should provide the best indication of induced change.

Specification

The program consists of quarterly sampling at the sampling stations identified in Table 4.1-1. All benthic monitoring will be performed by the Division of Environmental Planning's Environmental Biology Branch, using standard accepted biological sampling and enumeration procedures for benthic fauna. These procedures are on file in the office of the Environmental Biology Branch, Muscle Shoals, Alabama. Benthic organisms are sorted from the sediment by washing fine material through a sieve and separating from the larger sediment particles. The four principal benthic macroinvertebrates selected for study are burrowing mayflies (Hexagenia), aquatic worms (Oligochaeta), midges (Chironomidae), and Asiatic clams (Corbicula).

Revised: JUL 10 1975



Reporting Requirement

The results will be summarized in semiannual reports of the nonradiological monitoring program.

Bases

The four benthic macroinvertebrates selected for study represent the predominant benthic fauna in Wheeler Reservoir. Normally currents in a reservoir do not affect the location and movement of benthic populations. Thus, these organisms can be studied at a specific location over an extended period to determine significant population changes.

(b) Phytoplankton Monitoring

Objective

Quarterly monitoring of phytoplankton will be conducted at the locations shown in Table 4.1-1 to assess changes in phytoplankton populations. Since algal growth and photosynthesis vary with changes in water temperature, light intensity, and nutrient concentrations, the data will have some natural variability.

Specification

All phytoplankton monitoring will be performed by the Division of Environmental Planning's Environmental Biology Branch using standard accepted procedures for phytoplankton sampling, enumeration, and biomass and productivity determinations. These procedures are on file in the office of the Environmental Biology Branch, Muscle Shoals, Alabama.

Reporting Requirement

The results will be summarized in semiannual reports of the nonradiological monitoring program.

Bases

Changes to populations of phytoplankters, either in numbers or species, may indicate effects from the plant, particularly from heat introduction. Changes may occur that are not detectable because of the high variability associated with sampling on a quarterly frequency. Additionally, prolonged exposure to high temperatures during late summer or fall enhances the growth of blue-green algae. In algal communities exposed to these conditions, dominance usually shifts successively from diatoms to green algae and eventually to blue-green algae.

Enumeration and biomass estimates are used to assess the standing crop of phytoplankton. Productivity measurements are used to determine the vitality of phytoplankton cells. The procedure is based on the amount of carbon-14 assimilated by viable cells over a measured period of time in a water sample of known volume.

Revised

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. 5  
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 March 21, 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:

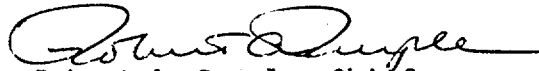
"(2) Technical Specifications

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. 11."



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

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment:  
Change No. 9 to Technical Specifications

Date of Issuance: JUL 10 1975

ATTACHMENT TO LICENSE AMENDMENT NO. 5  
CHANGE NO. 9 TO THE TECHNICAL SPECIFICATIONS  
FACILITY OPERATING LICENSE NO. DPR-52  
TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT UNIT NO. 2  
DOCKET NO. 50-260

Revise Appendix B as follows:

1. Remove pages 2 and 3 and 15 and 16.
2. Insert revised pages 2 and 3 and 15 and 16.

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 50-259, 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 Nos. 8 and 5 to Facility Operating License Nos. DPR-33 and DPR-52 issued to the 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 the date of issuance.

The amendments permit relocation of the temperature monitor farthest upstream to a new location in a vicinity of the secondary temperature monitor upstream of the plants in order to eliminate measurement of the natural heating and cooling effects in the Wheeler Reservoir and delete specific location requirements of temperature sensors relating to thermal plume mapping studies to provide greater flexibility to verify modeling predictions.

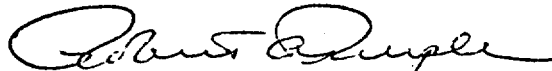
The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954 as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments is not required since the amendments do not involve a significant hazards consideration. The Commission has determined that the action being taken does not require preparation of an environmental impact statement.

For further details with respect to this action, see (1) the application for amendment dated March 21, 1975, (2) Amendment Nos. 8 and 5 to License Nos. DPR-33 and DPR-52, with Change Nos. 9 and 9, (3) the Commission's related Negative Declaration published concurrently with this notice, and (4) the Environmental Impact Appraisal. 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 (4) 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 10th day of July 1975.

FOR THE NUCLEAR REGULATORY COMMISSION



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

NEGATIVE DECLARATION  
REGARDING PROPOSED CHANGES  
TO THE  
TECHNICAL SPECIFICATIONS  
OF  
OPERATING LICENSE NOS. DPR-33 AND DPR-52  
BROWNS FERRY NUCLEAR PLANT UNITS 1 AND 2  
DOCKET NOS. 50-259 AND 50-260

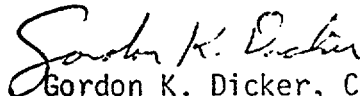
The Nuclear Regulatory Commission (the Commission) has considered the issuance of changes to the Technical Specifications Appendix B of Facility Operating License Nos. DPR-33 and DPR-52. These changes would authorize the Tennessee Valley Authority (the licensee) to operate the Browns Ferry Nuclear Plant Units 1 and 2 and to incorporate changes in the environmental monitoring program by relocation of the temperature monitor farthest upstream to a new location in vicinity of the secondary temperature monitor upstream of the plant and to delete specific location requirements of temperature sensors relating to thermal plume mapping studies.

The U.S. Nuclear Regulatory Commission, Division of Reactor Licensing, has prepared an environmental impact appraisal for the proposed change to the Technical Specifications Appendix B, of License Nos. DPR-33 and DPR-52, Browns Ferry Nuclear Plant, described above. On the basis of this appraisal, we have concluded that an environmental impact statement for this particular action is not warranted because there will be no environmental impact attributable to the proposed action other than that which has already been predicted and described in the Commission's Final Environmental Statement

for the Browns Ferry Nuclear Plant Units 1, 2 and 3 published on September 1, 1972. The environmental impact appraisal is available for public inspection at the Commission's Public Document Room at 1717 H Street, N.W., Washington, D.C. and the Athens Public Library, South and Forrest, Athens, Alabama.

Dated at Rockville, Maryland, this 10th day of July 1975.

FOR THE NUCLEAR REGULATORY COMMISSION



Gordon K. Dicker, Chief  
Environmental Projects Branch 2  
Division of Reactor Licensing



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

ENVIRONMENTAL IMPACT APPRAISAL BY THE DIVISION OF REACTOR LICENSING

SUPPORTING AMENDMENT NO. 8&5 TO DPR-33 AND DPR-52

CHANGE NO. 9 TO THE TECHNICAL SPECIFICATIONS

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT UNIT NOS. 1 AND 2

ENVIRONMENTAL IMPACT APPRAISAL

1. Description of Proposed Action

By letter dated March 21, 1975, and supporting information contained in TVA Report No. 63-50, dated March 1975, the Tennessee Valley Authority submitted proposed changes to the Environmental Technical Specifications Appendix B to License Nos. DPR-33 and DPR-52. The proposed changes were requested in the environmental monitoring program for the relocation of the temperature monitor farthest upstream to a new location in vicinity of the secondary temperature monitor upstream of the plant in order to eliminate the natural heating and cooling effects in the Wheeler Reservoir and to delete specific locations of temperature sensors relating to thermal plume mapping to provide greater flexibility to verify modeling predictions.

The applicant is presently licensed to possess and operate Browns Ferry Nuclear Plant Units 1 and 2 located in Limestone County, Alabama, at power levels up to 3293 MW(t) each. The proposed changes do not result in an increase in power levels.

2. Environmental Impacts of the Proposed Action

Potential environmental impacts associated with the proposed action are those which might be ascribed as being temporary in nature when the temperature monitors are removed and relocated to the new locations.

The Final Environmental Statement included assessments regarding operation of the Browns Ferry Nuclear Plant and the Guntersville (upstream) and Wheeler (downstream) dams which are operated primarily for hydroelectric power production and navigation and at some periods of the year for flood control. The original concern related to chance that a warm water wedge resulting from the thermal plume and



possible reversal of flow of greater magnitude from operation of the hydroelectric plants would occur. This condition had not been observed under the present operating rules in that water level in Wheeler Reservoir does not vary more than six feet during the year.

The temperature monitoring program has provided substantiating data to indicate that there is significant natural heating and cooling effects in the Wheeler Reservoir between the upstream primary temperature monitor at approximately 15 miles from the secondary downstream temperature monitor. Relocation of the upstream primary temperature monitor to a new location downstream in vicinity of the secondary temperature closer to the plant would not be an environmental impact but would provide better correlation of actual ambient temperature conditions for plant operation.

In view of the fact that several years of water temperature data have been collected, evaluated and analyzed in conjunction with infra-red photography studies and water temperatures collected during a full year of operation, the staff concludes that relocation of the upstream temperature monitor and deleting specific location requirements of temperature sensors associated with the thermal plume mapping studies are justified.

For the above conditions no environmental impact other than that described in the Final Environmental Statement (FES) for Browns Ferry Nuclear Plant Units 1, 2, and 3, (TVA-OHES-EIS-72-6), Docket Nos. 50-259, 50-260 and 50-296 dated September 1, 1972 can be predicted for the proposed action. Therefore, the relocation of the upstream primary temperature sensor to the secondary location in proximity of the plant does not invalidate the environmental monitoring program.

### 3. Conclusion and Basis for Negative Declaration

On the basis of the foregoing analysis and evaluation, it is concluded that there will be no environmental impact attributable to the proposed action other than has already been predicted and described in the FES for Browns Ferry Nuclear Plant Units 1, 2 and 3.

Having made this conclusion, the Commission has further concluded that no environmental impact statement for the proposed action need be prepared, and that a negative declaration to this effect is appropriate.

DATE: JUL 10 1975