Docket Files

August 31, 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. 32 , 29 and 8 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 July 26, 1977.

The amendments revise the Appendix B Technical Specifications to allow the 90°F discharge water temperature limit subsequent to August 31, 1977, pending a decision by the Environmental Protection Agency (EPA) and the State of Alabama on the appropriate thermal limits. This action conforms to those taken by EPA and the State of Alabama pending their decision. 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.

Copies of the Environmental Impact Appraisal and the Notice of Issuance/ Negative Declaration are also enclosed.

Sincerely,

"CHARLES M. TRAMMELL

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

Enclosures and cc:
See next page

conform

OFFICE ➤						
SURNAME ➤						
DATE ➤						

NRC FORM 318 (9-76) NRCM 0240 ☆ U.S. GOVERNMENT PRINTING OFFICE: 1976 — 626-624

Enclosures:
1. Amendment No. 32 to DPR-33
2. Amendment No. 29 to DPR-52
3. Amendment No. 8 to DPR-68
4. Environmental Impact Appraisal
5. Notice of Issuance/Negative Declaration

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DATE	8/29/77	8/30/77	8/31/77	8/31/77		

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

Note to Tom Wambach

OELD concurrence subject to these changes.
A. M. Schwencer 8/30/77

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. , and 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 July 26, 1977.

subsequent to August 31, 1977

The amendments revise the Appendix B Technical Specifications to allow the 90°F discharge water temperature limit ~~for an indefinite period until~~ the Environmental Protection Agency (EPA) and the State of Alabama ~~make a permanent decision~~ appropriate on the thermal limits. This conforms to ~~the actions~~ those taken by EPA and the state of Alabama. 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.

pending a decision by

pending their decision

Copies of the Environmental Impact Appraisal and the Notice of Issuance/ Negative Declaration are also enclosed.

Sincerely,

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

Enclosures and cc:
See next page

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. TO FACILITY LICENSE NO. DPR-33

AMENDMENT NO. TO FACILITY LICENSE NO. DPR-52

AMENDMENT NO. TO FACILITY LICENSE NO. DPR-68

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

Revise Appendix B as follows:

Remove pages 2, 3 and 4 and replace with revised pages 2, 3 and 4.

.0 LIMITING CONDITIONS FOR OPERATION

.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 90°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.

TVA shall (which would then govern) immediately advise the Commission if more stringent limitations are imposed by the State EPA or the

If the findings of the adjudicatory hearing or the application process for the hearing results in a lower temperature limit than 90°F, the licensee shall submit a request for an amendment that will conform to the lower limit.

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

2.1 Continued

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 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.

The Tennessee Valley Authority has taken action to comply with applicable thermal water quality standards of the State of Alabama in the operation of the 3-unit Browns Ferry facility by installing mechanical draft cooling towers. However, inadequate cooling tower performance has resulted in drastic curtailment of power generation during summer periods when peak load demands are critical on the TVA system to meet thermal standards.

The Browns Ferry Nuclear Plant Environmental Statement analyzed the environmental effects of operating the plant with a 10°F rise and 93°F maximum temperature limitation. This evaluation concluded that the 10°F and 93°F limitations would be adequate to protect aquatic life. Hydrologic studies recently conducted confirm that a 90°F limitation would not result in excessive temperature conditions in the cool water fisheries habitat downstream from the plant. An additional environmental assessment recently completed by TVA concludes that operation at or near the 90°F maximum temperature limitations will not result in adverse impacts on the biota of the reservoir.

TVA has requested from EPA and the State of Alabama that the maximum temperature limitation be increased to 90°F. The EPA ~~is considering~~ an ~~adjudicatory hearing on the matter and has indefinitely~~ stayed the 86°F maximum temperature requirement of the Browns Ferry NPDES permit in accordance with 40 CFR §125.35 and 40 CFR §125.36. EPA has requested ~~that during this indefinite period~~ TVA comply with the 90°F maximum temperature limit. A letter confirming concurrence with EPA's position was received from the staff of the Alabama Water Improvement Commission dated July 18, 1977.

while the stay is in effect that

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
WASHINGTON, D. C. 20555

ENVIRONMENTAL IMPACT APPRAISAL BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NOS. , AND TO

FACILITY LICENSE NOS. DPR-33, DPR-52 AND DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2 AND 3

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

Description of Proposed Action

(TVA)

By letter dated July 26, 1977, from Tennessee Valley Authority to Mr. Victor Stello, Jr., Nuclear Regulatory Commission (NRC), TVA requested a change to the environmental Technical Specification, Section 2.1, which would allow an increase in the discharge water temperature limits. On July 15, 1977, such a change was allowed for an interim period to expire August 31, 1977. This proposed amendment ~~would allow~~ permits operation at this higher temperature limit ~~for an indefinite period of time pending~~ subsequent to August 31, 1977 decision on TVA's request to them pursuant to the Federal Water Pollution Control Act (FWPCA) to change the thermal limits. ~~the Environmental Protection Agency and the State of Alabama make a permanent decision on the thermal limits.~~

The proposed change would allow an increase in the downstream control point maximum temperature from 86°F to 90°F. TVA has had problems meeting the 86°F limit because of poor cooling tower performance and high ambient river temperatures. This higher temperature will cause slightly larger thermal plumes downstream of the plant and upstream of the plant under low stream flow conditions. The Browns Ferry Nuclear Station National Pollutant Discharge Elimination System (NPDES) Permit also contains a maximum discharge temperature limitation of 86°F. TVA requested relief from the U.S. Environmental Protection Agency (EPA) on the NPDES Permit 86°F limit by asking that an adjudicatory hearing be granted. ~~(This contested provision would then be stayed until the hearing was held.)~~ By letter dated July 15, 1977,[1] EPA granted a stay to the maximum discharge temperature ~~but did not grant or deny the~~ request for an adjudicatory hearing. The EPA letter further required that when the ambient upstream temperature exceeds 81°F, the maximum discharge temperature shall not exceed 90°F as measured at the downstream control point. ~~The EPA has requested additional information from TVA from which they will decide to either grant or deny a hearing or grant a change in the temperature limit without a hearing.~~ pending decision on TVA's

The State has concurred in this action [4]

~~Under conditions of the licensee~~ NRC is obliged to conform its ~~specifications to state and EPA requirements.~~ The present state-EPA temperature standards limit maximum temperature rise of a stream by the addition of heat to no more than 5°F with a maximum allowable water temperature not to exceed 90°F; in areas which have been designated by the Alabama Department of Conservation as supporting smallmouth bass, sauger, and walleye, which are considered coldwater species, the temperature shall not exceed 86°F. Wheeler Reservoir has been officially designated as this type of fishery.

Evaluation

Wheeler Reservoir contains primarily warm water fish fauna considered typical of southeastern U.S. reservoirs. It also contains three typically coldwater species, namely, smallmouth bass, sauger and walleye.[2] It was because of concern over these species that the limit of 86°F maximum temperature was imposed. The distribution of these species as determined by netting and creel census results, is such that they are not abundant in the area of the thermal plume. Sauger are concentrated above the plant, smallmouth bass are concentrated in areas several miles below the plant and in the Elk River, and walleye apparently do not make up a significant component of the fish population anywhere in the reservoir.[3] Information ~~telecopied~~ submitted to NRC on July 15, 1977, describes the location of Wheeler Reservoir spawning areas for these three species. The data indicate that no significant spawning activity occurs in the vicinity of the plant or in the area of the influence of the thermal plume, nor are significant densities of fish eggs and larvae found in these areas. The data indicate that the smallmouth bass spawn in other areas scattered throughout the reservoir, that the sauger spawn mainly in the tailraces of dams in the winter, and that no substantial presence of walleye spawning has been observed. This information was confirmed during a site visit by NRC technical staff on August 16, 1977. On this basis, we judge that there will be no significant impact to these species in Wheeler Reservoir attributable to this change.

Other forms of biota in the reservoir, including warm water fishes, were evaluated in the FES for a maximum discharge temperature of 93°F. That evaluation found that the impact was acceptable. We conclude that that finding is still valid.

Based on information, the NRC Staff concludes that an
~~On the basis of~~ the above analysis and ~~on the basis of the supporting information TVA has supplied us by their July 26, 1977 submittal, and on the basis of a site visit by NRC technical staff, we support an~~ increase in the maximum temperature limit at the downstream control point to 90°F ~~and conclude that this change~~ will not significantly affect the biota of the reservoir.

TVA has requested an adjudicatory hearing from EPA to obtain a permanent change from them to allow the 90°F temperature limit. If, as a result of their review or hearing, EPA concludes that a limit of less than 90°F should be required, TVA shall request NRC to conform the technical specifications to the EPA limit.

Conclusion and Basis for Negative Declaration

On the basis of the foregoing analysis, it is concluded that there will be no significant environmental impact attributable to the proposed action. 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:

If EPA or the State subsequently impose more stringent limits, these would control. TVA is to immediately advise the Commission of such EPA - State action.

REFERENCES

1. Letter from Howard Zeller of the U.S. Environmental Protection Agency to Herbert S. Sanger of Tennessee Valley Authority dated July 15, 1977.

2. Letter from Tennessee Valley Authority to Mr. Howard Zeller of the U. S. Environmental Protection Agency dated April 19, 1973.

3. An Environmental Assessment of Operation of Browns Ferry Nuclear Plant With the Thermal Limit of 90°F Maximum Temperature in Wheeler Reservoir, Tennessee Valley Authority, dated July 1977.

(4) State Letter July 18, 1977 ←?

the Licenses were amended July 15, 1977 to allow an increase in the maximum discharge temperature from 86° to 90° through August 31, 1977.

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

AND

NEGATIVE DECLARATION

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

These ~~The~~ amendments revise the Appendix B Technical Specifications to allow the 90°F discharge water temperature limit ~~for an indefinite period~~ subsequent to August 31, 1977 ~~until~~ pending decision by the Environmental Protection Agency (EPA) and the State of Alabama ~~make a permanent decision on the thermal limits~~ on TVA's request for relief from applicable thermal limits. ~~This~~ conforms to the actions taken by EPA and the State of Alabama pending their decision.

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 was not required since the amendments do not involve a significant hazards consideration.

the allowed increase

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

August 31, 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. 32 , 29 and 8 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 July 26, 1977.

The amendments revise the Appendix B Technical Specifications to allow the 90°F discharge water temperature limit subsequent to August 31, 1977, pending a decision by the Environmental Protection Agency (EPA) and the State of Alabama on the appropriate thermal limits. This action conforms to those taken by EPA and the State of Alabama pending their decision. 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.

Copies of the Environmental Impact Appraisal and the Notice of Issuance/ Negative Declaration are also enclosed.

Sincerely,

for Charles M. Trammell
A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Enclosures and cc:
See next page

Enclosures:
1. Amendment No. 32 to DPR-33
2. Amendment No. 29 to DPR-52
3. Amendment No. 8 to DPR-68
4. Environmental Impact Appraisal
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cc w/encl:
H. S. Sanger, Jr., Esquire
General Counsel
Tennessee Valley Authority
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Knoxville, Tennessee 37902

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State Health Officer
State Department of Public Health
State Office Building
Montgomery, Alabama 36104

Mr. C. S. Walker
Tennessee Valley Authority
400 Commerce Avenue
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Chief, Energy Systems
Analysis Branch (AW-459)
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U.S. Environmental Protection Agency
Region IV Office
ATTN: EIS COORDINATOR
345 Courtland Street
Atlanta, Georgia 30308

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. 32
License No. DPR-33

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated July 26, 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. 32 , 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 issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for Charles M. Trammell
A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 31, 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. 29
License No. DPR-52

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated July 26, 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. 29 , 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 issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for Charles M. Trammell

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 31, 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. 8
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 July 26, 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. 8 , 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 issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for Charles M. Trammell

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 31, 1977

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 32 TO FACILITY LICENSE NO. DPR-33

AMENDMENT NO. 29 TO FACILITY LICENSE NO. DPR-52

AMENDMENT NO. 8 TO FACILITY LICENSE NO. DPR-68

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

Revise Appendix B as follows:

Remove pages 2, 3 and 4 and replace with revised pages 2, 3 and 4.

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 90°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.

† TVA shall immediately advise the Commission if more stringent limitations (which would then govern) are imposed by EPA or the State.

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.

2.1 Continued

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 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.

The Tennessee Valley Authority has taken action to comply with applicable thermal water quality standards of the State of Alabama in the operation of the 3-unit Browns Ferry facility by installing mechanical draft cooling towers. However, inadequate cooling tower performance has resulted in drastic curtailment of power generation during summer periods when peak load demands are critical on the TVA system to meet thermal standards.

The Browns Ferry Nuclear Plant Environmental Statement analyzed the environmental effects of operating the plant with a 10°F rise and 93°F maximum temperature limitation. This evaluation concluded that the 10°F and 93°F limitations would be adequate to protect aquatic life. Hydrologic studies recently conducted confirm that a 90°F limitation would not result in excessive temperature conditions in the cool water fisheries habitat downstream from the plant. An additional environmental assessment recently completed by TVA concludes that operation at or near the 90°F maximum temperature limitations will not result in adverse impacts on the biota of the reservoir.

TVA has requested from EPA and the State of Alabama that the maximum temperature limitation be increased to 90°F. The EPA stayed the 86°F maximum temperature requirements of the Browns Ferry NPDES permit in accordance with 40 CFR §125.35 and 40 CFR §125.36. EPA has requested while the stay is in effect that TVA comply with the 90°F maximum temperature limit. A letter confirming concurrence with EPA's position was received from the staff of Alabama Water Improvement Commission dated July 18, 1977.

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
WASHINGTON, D. C. 20555

ENVIRONMENTAL IMPACT APPRAISAL BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NOS. 32, 29 AND 8 TO

FACILITY LICENSE NOS. DPR-33, DPR-52 AND DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2 AND 3

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

Description of Proposed Action

By letter dated July 26, 1977, from Tennessee Valley Authority (TVA) to Mr. Victor Stello, Jr., Nuclear Regulatory Commission (NRC), TVA requested a change to the environmental Technical Specification, Section 2.1, which would allow an increase in the discharge water temperature limits. On July 15, 1977, such a change was allowed for an interim period to expire August 31, 1977. These proposed amendments permit operation at this higher temperature limit subsequent to August 31, 1977, pending the Environmental Protection Agency and the State of Alabama decision on TVA's request to them pursuant to the Federal Water Pollution Control ACT (FWPCA) to change the thermal limits.

The proposed change would allow an increase in the downstream control point maximum temperature from 86°F to 90°F. TVA has had problems meeting the 86°F limit because of poor cooling tower performance and high ambient river temperature. This higher temperature will cause slightly larger thermal plumes downstream of the plant and upstream of the plant under low stream flow conditions. The Browns Ferry Nuclear Station National Pollutant Discharge Elimination System (NPDES) Permit also contains a maximum discharge temperature limitation of 86°F. TVA requested relief from the U.S. Environmental Protection Agency (EPA) on the NPDES Permit 86°F limit by asking that an adjudicatory hearing be granted. By letter dated July 15, 1977,[1] EPA granted a stay to the maximum discharge temperature pending decision on TVA's request for an adjudicatory hearing. The EPA letter further required that when the ambient upstream temperature exceeds 81°F, the maximum discharge temperature shall not exceed 90°F as measured at the downstream control point. The State has concurred in this action.[4]

The present State-EPA temperature standards limit maximum temperature rise of a stream by the addition of heat to no more than 5°F with a maximum allowable water temperature not to exceed 90°F; in areas which have been designated by the Alabama Department of Conservation as supporting smallmouth bass, sauger, and walleye, which are considered coldwater species, the temperature shall not exceed 86°F. Wheeler Reservoir has been officially designated as this type of fishery.

Evaluation

Wheeler Reservoir contains primarily warm water fish fauna considered typical of southeastern U.S. reservoirs. It also contains three typically coldwater species, namely, smallmouth bass, sauger and walleye.[2/] It was because of concern over these species that the limit of 86°F maximum temperature was imposed. The distribution of these species as determined by netting and creel census results, is such that they are not abundant in the area of the thermal plume. Sauger are concentrated above the plant, smallmouth bass are concentrated in areas several miles below the plant and in the Elk River, and walleye apparently do not make up a significant component of the fish population anywhere in the reservoir.[3/] Information submitted to NRC on July 15, 1977, describes the location of Wheeler Reservoir spawning areas for these three species. The data indicate that no significant spawning activity occurs in the vicinity of the plant or in the area of the influence of the thermal plume, nor are significant densities of fish eggs and larvae found in these areas. The data indicate that the smallmouth bass spawn in other areas scattered throughout the reservoir, that the sauger spawn mainly in the tailraces of dams in the winter, and that no substantial presence of walleye spawning has been observed. This information was confirmed during a site visit by NRC technical staff on August 16, 1977. On this basis, we judge that there will be no significant impact to these species in Wheeler Reservoir attributable to this change.

Other forms of biota in the reservoir, including warm water fishes, were evaluated in the FES for a maximum discharge temperature of 93°F. That evaluation found that the impact was acceptable. We conclude that that finding is still valid.

Based on the above analysis and information, the NRC staff concludes that an increase in the maximum temperature limit at the downstream control point to 90°F will not significantly affect the biota of the reservoir.

If EPA or the State subsequently impose more stringent limits, these would control. TVA is to immediately advise the Commission of such EPA-State action.

Conclusion and Basis for Negative Declaration

On the basis of the foregoing analysis, it is concluded that there will be no significant environmental impact attributable to the proposed action. 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: August 31, 1977

REFERENCES

1. Letter from Howard Zeller of the U.S. Environmental Protection Agency to Herbert S. Sanger of Tennessee Valley Authority dated July 15, 1977.

2. Letter from Tennessee Valley Authority to Mr. Howard Zeller of the U. S. Environmental Protection Agency dated April 19, 1973.

3. An Environmental Assessment of Operation of Browns Ferry Nuclear Plant With the Thermal Limit of 90°F Maximum Temperature in Wheeler Reservoir, Tennessee Valley Authority, dated July 1977.

4. Letter from State of Alabama Water Improvement Commission dated July 18, 1977, to H. S. Sanger, Jr., Tennessee Valley Authority.

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

AND NEGATIVE DECLARATION

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 32 to Facility Operating License No. DPR-33, Amendment No. 29 to Facility Operating License No. DPR-52, and Amendment No. 8 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 and 3 (the facility), located in Limestone County, Alabama. The amendments are effective as of the date of issuance.

The licenses were amended July 15, 1977, to allow an increase in the maximum discharge temperature from 86°F to 90°F through August 31, 1977. These amendments revise the Appendix B Technical Specifications to allow the 90°F discharge water temperature limit subsequent to August 31, 1977, pending decision by the Environmental Protection Agency (EPA) and the State of Alabama on TVA's request for relief from applicable thermal limits. The allowed increase conforms to the actions taken by EPA and the State of Alabama pending their decision.

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 was not required since the amendments do not involve a significant hazards consideration.

The Commission has prepared an Environmental Impact Appraisal for the revised Technical Specifications and has concluded that an environmental impact statement for this particular action is not warranted because there will be no significant environmental impact attributable to the action.

For further details with respect to this action, see (1) the application for amendments dated July 26, 1977, (2) Amendment No. 32 to License No. DPR-33, Amendment No. 29 to License No. DPR-52, and Amendment No. 8 to License No. DPR-68, and (3) the Commission's Environmental Impact Appraisal. 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 31st day of August 1977.

FOR THE NUCLEAR REGULATORY COMMISSION

Charles M. Trammell

Charles M. Trammell, Acting Chief
Operating Reactors Branch #1
Division of Operating Reactors