



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. 179
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 August 7, 1990, as supplemented November 30, 1990, 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.

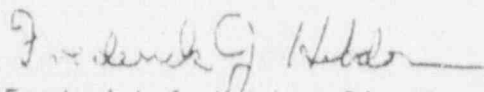
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-33 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.179 , 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 its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Frederick J. Heddon, Director
Project Directorate II-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 24, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 179

FACILITY OPERATING LICENSE NO. DPR-33

DOCKET NO. 50-259

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal line indicating the area of change. Overleaf pages* are provided to maintain document completeness.

REMOVE

3.11/4.11-3

3.11/4.11-4

3.11/4.11-23

3.11/4.11-24

INSERT

3.11/4.11-3

3.11/4.11-4*

3.11/4.11-23

3.11/4.11-24*

*Denotes overleaf or spillover page.

3.11/4.11 FIRE PROTECTION SYSTEMS

LIMITING CONDITIONS FOR OPERATION

3.11.B FIRE PUMPS AND WATER
DISTRIBUTION MAINS (Cont'd)

2. With only the diesel or one or more of the three electric pumps OPERABLE, restore the inoperable equipment to OPERABLE status within 7 days or provide an alternate backup pump or supply.
3. With no high-pressure fire pumps OPERABLE, establish a backup fire water system within 24 hours or be in COLD SHUTDOWN CONDITION within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.11.B FIRE PUMPS AND WATER
DISTRIBUTION MAINS (Cont'd)

- e. At least yearly by cycling each testable valve in the flow path through at least one complete cycle of full travel.
- f. At least once per 18 months, by performing a system functional test which includes simulated actuation of the system throughout its operating sequence, and:
 - (1) Verifying that each automatic valve in the flow path actuates to its correct position,
 - (2) Verifying that each electric high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.
 - (3) Verifying the diesel-driven high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.

3.11/4.11 FIRE PROTECTION SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.11.B FIRE PUMPS AND WATER
DISTRIBUTION MAINS (Cont'd)

4.11.B FIRE PUMPS AND WATER
DISTRIBUTION MAINS (Cont'd)

(4) Verifying that after initial high-pressure fire pump actuation each subsequent high-pressure fire pump starts sequentially to maintain the High-Pressure Fire Protection System pressure greater than or equal to 120 psig.

g. At least once per 3 years by performing a flow test of the system in accordance with the Fire Protection Handbook published by the National Fire Protection Association.

2. The diesel-driven high-pressure fire pump shall be demonstrated OPERABLE:

a. At least monthly by:

(1) Verifying the fuel tank contains at least 150 gallons of fuel.

(2) Starting the pump from ambient conditions and operating for greater than or equal to 30 minutes on recirculation flow.

FIRE PROTECTION SYSTEMS

The OPERABILITY of the fire protection systems ensures that adequate fire protection features are available to detect, confine, and extinguish fires occurring in any portion of the facility where safety-related equipment is located. The fire protection system consists of fire detection instrumentation, fire pumps, and water distribution mains, spray and/or sprinkler systems, CO₂ systems, fire hose stations, yard fire hydrants and hose house stations and fire barriers. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety-related equipment and is a major element in the facility fire protection program. OPERABILITY of the detection instrumentation ensures that both adequate warning capability is available for prompt detection of fires and that fire suppression systems that are actuated by fire detectors will discharge extinguishing agent in a timely manner. Prompt detection and suppression of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility fire protection program.

In the event that portions of the fire protection systems are inoperable, alternate backup fire fighting equipment is required to be made available in the affected areas until the inoperable equipment is restored to service. When the inoperable fire fighting equipment is intended for use as a backup means of fire suppression, a longer period of time is allowed to provide an alternate means of fire fighting than if the inoperable equipment is the primary means of fire suppression.

If in the event that all the high-pressure fire pumps become inoperable, an alternate backup pump or supply is available, such as using the additional fire pump which normally protects outlying areas and mobile fire apparatus to maintain the 2250 gpm water supply at a system head of 300 feet.

Fire protection water systems protecting areas containing redundant safe shutdown systems, as defined in BFN's Fire Hazard Analysis, warrant more stringent compensatory measures (i.e., continuous fire watches) than areas containing only one division of safe shutdown systems or safety-related equipment not required for safe shutdown under fire conditions.

The surveillance requirements provide assurances that the minimum OPERABILITY requirements of the fire protection systems are met. All fire protection equipment surveillances required by this technical specification can be performed when the unit is in any operating mode.

3.11 BASES (Cont'd)

FIRE PROTECTION SYSTEMS (Cont'd)

Flushing of the high-pressure fire protection system mains and building headers assures that sediment and marine growth is removed from the system to prevent obstruction. Subsequent biocide addition reduces further marine organism growth. Individual hose stations and fire hydrants are not included in the overall flush requirements, but are flushed periodically during specific OPERABILITY verifications. Hydraulic performance of the water fire suppression system is tested in accordance with the 16th Edition of the Fire Protection Handbook, published by the National Fire Protection Association.

The functional integrity of the fire barrier assemblies and penetration sealing devices ensures that fires will be confined or adequately retarded from spreading to adjacent portions of the facility. This design feature minimizes the possibility of a single fire from involving several areas of the facility prior to detection and extinguishment. The fire barrier penetrations are a passive element in the facility fire protection program and are subject to periodic inspections.

The barrier penetrations, including fire doors, fire dampers, and cable and pipe penetration seals, are considered functional when the visually observed condition indicates no significant degradation.



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. 188
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 August 7, 1990, as supplemented November 30, 1990, 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.

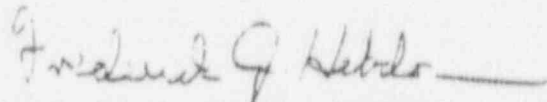
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 188, 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 its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Frederick J. Hebdon, Director
Project Directorate II-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 24, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 188

FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf pages* are provided to maintain document completeness.

REMOVE

3.11/4.11-3

3.11/4.11-4

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*Denotes overleaf or spillover page.

3.11/4.11 FIRE PROTECTION SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.11.B FIRE PUMPS AND WATER DISTRIBUTION MAINS (Cont'd)

2. With only the diesel or one or more of the three electric pumps OPERABLE, restore the inoperable equipment to OPERABLE status within 7 days or provide an alternate backup pump or supply.
3. With no high-pressure fire pumps OPERABLE, establish a backup fire water system within 24 hours or be in COLD SHUTDOWN CONDITION within the following 24 hours.

4.11.B FIRE PUMPS AND WATER DISTRIBUTION MAINS (Cont'd)

- e. At least yearly by cycling each testable valve in the flow path through at least one complete cycle of full travel.
- f. At least once per 18 months, by performing a system functional test which includes simulated actuation of the system throughout its operating sequence, and:
 - (1) Verifying that each automatic valve in the flow path actuates to its correct position,
 - (2) Verifying that each electric high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.
 - (3) Verifying the diesel-driven high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.

3.11/4.11 FIRE PROTECTION SYSTEMS

LIMITING CONDITIONS FOR OPERATION

3.11.B FIRE PUMPS AND WATER
DISTRIBUTION MAINS (Cont'd)

SURVEILLANCE REQUIREMENTS

4.11.B FIRE PUMPS AND WATER
DISTRIBUTION MAINS (Cont'd)

- (4) Verifying that after initial high-pressure fire pump actuation each subsequent high-pressure fire pump starts sequentially to maintain the High-Pressure Fire Protection System pressure greater than or equal to 120 psig.
- e. At least once per 3 years by performing a flow test of the system in accordance with the Fire Protection Handbook published by the National Fire Protection Association.
- 2. The diesel-driven high-pressure fire pump shall be demonstrated OPERABLE:
 - a. At least monthly by:
 - (1) Verifying the fuel tank contains at least 150 gallons of fuel.
 - (2) Starting the pump from ambient conditions and operating for greater than or equal to 30 minutes on recirculation flow.

3.11 BASES

FIRE PROTECTION SYSTEMS

The OPERABILITY of the fire protection systems ensures that adequate fire protection features are available to detect, confine, and extinguish fires occurring in any portion of the facility where safety-related equipment is located. The fire protection system consists of fire detection instrumentation, fire pumps, and water distribution mains, spray and/or sprinkler systems, CO₂ systems, fire hose stations, yard fire hydrants and hose house stations and fire barriers. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety-related equipment and is a major element in the facility fire protection program. OPERABILITY of the detection instrumentation ensures that both adequate warning capability is available for prompt detection of fires and that fire suppression systems that are actuated by fire detectors will discharge extinguishing agent in a timely manner. Prompt detection and suppression of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility fire protection program.

In the event that portions of the fire protection systems are inoperable, alternate backup fire fighting equipment is required to be made available in the affected areas until the inoperable equipment is restored to service. When the inoperable fire fighting equipment is intended for use as a backup means of fire suppression, a longer period of time is allowed to provide an alternate means of fire fighting than if the inoperable equipment is the primary means of fire suppression.

If in the event that all the high-pressure fire pumps become inoperable, an alternate backup pump or supply is available, such as using the additional fire pump which normally protects outlying areas and mobile fire apparatus to maintain the 2250 gpm water supply at a system head of 300 feet.

Fire protection water systems protecting areas containing redundant safe shutdown systems, as defined in BFN's Fire Hazard Analysis, warrant more stringent compensatory measures (i.e., continuous fire watches) than areas containing only one division of safe shutdown systems or safety-related equipment not required for safe shutdown under fire conditions.

The surveillance requirements provide assurances that the minimum OPERABILITY requirements of the fire protection systems are met. All fire protection equipment surveillances required by this technical specification can be performed when the unit is in any operating mode.

3.11 BASES (Cont'd)

FIRE PROTECTION SYSTEMS (Cont'd)

Flushing of the high-pressure fire protection system mains and building headers assures that sediment and marine growth is removed from the system to prevent obstruction. Subsequent biocide addition reduces further marine organism growth. Individual hose stations and fire hydrants are not included in the overall flush requirements, but are flushed periodically during specific OPERABILITY verifications. Hydraulic performance of the water fire suppression system is tested in accordance with the 16th Edition of the Fire Protection Handbook, published by the National Fire Protection Association.

The functional integrity of the fire barrier assemblies and penetration sealing devices ensures that fires will be confined or adequately retarded from spreading to adjacent portions of the facility. This design feature minimizes the possibility of a single fire from involving several areas of the facility prior to detection and extinguishment. The fire barrier penetrations are a passive element in the facility fire protection program and are subject to periodic inspections.

The barrier penetrations, including fire doors, fire dampers, and cable and pipe penetration seals, are considered functional when the visually observed condition indicates no significant degradation.

AMENDMENT NO. 159



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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 151
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 August 7, 1990, as supplemented November 30, 1990, 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.

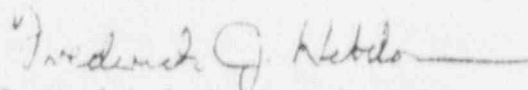
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-68 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 151, 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 its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Frederick J. Heddon, Director
Project Directorate II-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 24, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 151

FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf pages* are provided to maintain document completeness.

REMOVE

3.11/4.11-3

3.11/4.11-4

3.11/4.11-21

3.11/4.11-22

INSERT

3.11/4.11-3

3.11/4.11-4*

3.11/4.11-23

3.11/4.11-24*

*Denotes overleaf or spillover page.

3.11/4.11 FIRE PROTECTION SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.11.B FIRE PUMPS AND WATER DISTRIBUTION MAINS (Cont'd)

2. With only the diesel or one or more of the three electric pumps OPERABLE, restore the inoperable equipment to OPERABLE status within 7 days or provide an alternate backup pump or supply.
3. With no high-pressure fire pumps OPERABLE, establish a backup fire water system within 24 hours or be in COLD SHUTDOWN CONDITION within the following 24 hours.

4.11.B FIRE PUMPS AND WATER DISTRIBUTION MAINS (Cont'd)

- e. At least yearly by cycling each testable valve in the flow path through at least one complete cycle of full travel.
- f. At least once per 18 months, by performing a system functional test which includes simulated actuation of the system throughout its operating sequence, and:
 - (1) Verifying that each automatic valve in the flow path actuates to its correct position,
 - (2) Verifying that each electric high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.
 - (3) Verifying the diesel-driven high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.11.B FIRE PUMPS AND WATER DISTRIBUTION MAINS (Cont'd)

4.11.B FIRE PUMPS AND WATER DISTRIBUTION MAINS (Cont'd)

- (4) Verifying that after initial high-pressure fire pump actuation each subsequent high-pressure fire pump starts sequentially to maintain the High-Pressure Fire Protection System pressure greater than or equal to 120 psig.
- g. At least once per 3 years by performing a flow test of the system in accordance with the Fire Protection Handbook published by the National Fire Protection Association.
- 2. The diesel-driven high-pressure fire pump shall be demonstrated OPERABLE:
 - a. At least monthly by:
 - (1) Verifying the fuel tank contains at least 150 gallons of fuel.
 - (2) Starting the pump from ambient conditions and operating for greater than or equal to 30 minutes on recirculation flow.

FIRE PROTECTION SYSTEMS

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In the event that portions of the fire protection systems are inoperable, alternate backup fire fighting equipment is required to be made available in the affected areas until the inoperable equipment is restored to service. When the inoperable fire fighting equipment is intended for use as a backup means of fire suppression, a longer period of time is allowed to provide an alternate means of fire fighting than if the inoperable equipment is the primary means of fire suppression.

If in the event that all the high-pressure fire pumps become inoperable, an alternate backup pump or supply is available, such as using the additional fire pump which normally protects outlying areas and mobile fire apparatus to maintain the 2250 gpm water supply at a system head of 300 feet.

Fire protection water systems protecting areas containing redundant safe shutdown systems, as defined in BFN's Fire Hazard Analysis, warrant more stringent compensatory measures (i.e., continuous fire watches) than areas containing only one division of safe shutdown systems or safety-related equipment not required for safe shutdown under fire conditions.

The surveillance requirements provide assurances that the minimum OPERABILITY requirements of the fire protection systems are met. All fire protection equipment surveillances required by this technical specification can be performed when the unit is in any operating mode.

3.11 BASES (Cont'd)

FIRE PROTECTION SYSTEMS (Cont'd)

Flushing of the high-pressure fire protection system mains and building headers assures that sediment and marine growth is removed from the system to prevent obstruction. Subsequent biocide addition reduces further marine organism growth. Individual hose stations and fire hydrants are not included in the overall flush requirements, but are flushed periodically during specific OPERABILITY verifications. Hydraulic performance of the water fire suppression system is tested in accordance with the 16th Edition of the Fire Protection Handbook, published by the National Fire Protection Association.

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The barrier penetrations, including fire doors, fire dampers, and cable and pipe penetration seals, are considered functional when the visually observed condition indicates no significant degradation.