



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. 173
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 9, 1989, 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.

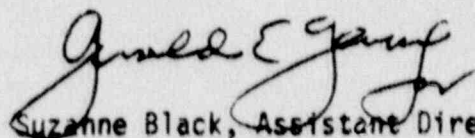
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-33 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 173, 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 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 24, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 173

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 lines indicating the area of change.

REMOVE

INSERT

3.5/4.5-12

3.5/4.5-12*

3.5/4.5-13

3.5/4.5-13

3.5/4.5-14

3.5/4.5-14

3.5/4.5-15

3.5/4.5-15

3.5/4.5-30

3.5/4.5-30

3.5/4.5-31

3.5/4.5-31

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.C RHR Service Water and Emergency Equipment Cooling Water Systems (EECWS) (Continued)

4. One of the D1 or D2 RHRSW pumps assigned to the RHR heat exchanger supplying the standby coolant supply connection may be inoperable for a period not to exceed 30 days provided the OPERABLE pump is aligned to supply the RHR heat exchanger header and the associated diesel generator and essential control valves are OPERABLE.
5. The standby coolant supply capability may be inoperable for a period not to exceed 10 days.
6. If Specifications 3.5.C.2 through 3.5.C.5 are not met, an orderly shutdown shall be initiated and the unit placed in the COLD SHUTDOWN CONDITION within 24 hours.
7. There shall be at least 2 RHRSW pumps, associated with the selected RHR pumps, aligned for RHR heat exchanger service for each reactor vessel containing irradiated fuel.

4.5.C RHR Service Water and Emergency Equipment Cooling Water Systems (EECWS) (Continued)

4. No additional surveillance is required.

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.C RHR Service Water and Emergency Equipment Cooling Water Systems (EECWS) (Continued)

4. One of the D1 or D2 RHRSW pumps assigned to the RHR heat exchanger supplying the standby coolant supply connection may be inoperable for a period not to exceed 30 days provided the OPERABLE pump is aligned to supply the RHR heat exchanger header and the associated diesel generator and essential control valves are OPERABLE.
5. The standby coolant supply capability may be inoperable for a period not to exceed 10 days.
6. If Specifications 3.5.C.2 through 3.5.C.5 are not met, an orderly shutdown shall be initiated and the unit placed in the COLD SHUTDOWN CONDITION within 24 hours.
7. There shall be at least 2 RHRSW pumps, associated with the selected RHR pumps, aligned for RHR heat exchanger service for each reactor vessel containing irradiated fuel.

4.5.C RHR Service Water and Emergency Equipment Cooling Water Systems (EECWS) (Continued)

4. No additional surveillance is required.

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.D Equipment Area Coolers

1. The equipment area cooler associated with each RHR pump and the equipment area cooler associated with each set of core spray pumps (A and C or B and D) must be OPERABLE at all times when the pump or pumps served by that specific cooler is considered to be OPERABLE.
2. When an equipment area cooler is not OPERABLE, the pump(s) served by that cooler must be considered inoperable for Technical Specification purposes.

E. High Pressure Coolant Injection System (HPCIS)

1. The HPCI system shall be OPERABLE whenever there is irradiated fuel in the reactor vessel and the reactor vessel pressure is greater than 150 psig, except as specified in Specification 3.5.E.2. OPERABILITY shall be determined within 12 hours after reactor steam pressure reaches 150 psig from a COLD CONDITION, or alternatively PRIOR TO STARTUP by using an auxiliary steam supply.

4.5.D Equipment Area Coolers

1. Each equipment area cooler is operated in conjunction with the equipment served by that particular cooler; therefore, the equipment area coolers are tested at the same frequency as the pumps which they serve.

E. High Pressure Coolant Injection System (HPCIS)

1. HPCI Subsystem testing shall be performed as follows:
 - a. Simulated Automatic Actuation Test Once/18 months
 - b. Pump OPERABILITY Per Specification 1.0.MM
 - c. Motor Operated Valve OPERABILITY Per Specification 1.0.MM
 - d. Flow Rate at normal reactor vessel operating pressure Once/3 months

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.E High Pressure Coolant Injection System (HPCIS)

4.5.E High Pressure Coolant Injection System (HPCIS)

4.5.E.1 (Cont'd)

- e. Flow Rate at Once/18
150 psig months

The HPCI pump shall deliver at least 5000 gpm during each flow rate test.

- f. Verify that Once/Month
each valve
(manual, power-operated, or automatic) in the injection flow-path that is not locked, sealed, or otherwise secured in position, is in its correct* position.

- 2. If the HPCI system is inoperable, the reactor may remain in operation for a period not to exceed 7 days, provided the ADS, CSS, RHRS (LPCI), and RCICS are OPERABLE.

- 3. If Specifications 3.5.E.1 or 3.5.E.2 are not met, an orderly shutdown shall be initiated and the reactor vessel pressure shall be reduced to 150 psig or less within 24 hours.

F. Reactor Core Isolation Cooling System (RCICS)

F. Reactor Core Isolation Cooling System (RCICS)

- 1. The RCICS shall be OPERABLE whenever there is irradiated fuel in the reactor vessel and the reactor vessel pressure is above 150 psig, except as specified in 3.5.F.2. OPERABILITY shall

- 1. RCIC Subsystem testing shall be performed as follows:

- a. Simulated Auto- Once/18
matic Actuation months
Test

* Except that an automatic valve capable of automatic return to its ECCS position when an ECCS signal is present may be in a position for another mode of operation.

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.F. Reactor Core Isolation Cooling System (RCICS)

3.5.F.1 (Cont'd)

be determined within 12 hours after reactor steam pressure reaches 150 psig from a COLD CONDITION or alternatively PRIOR TO STARTUP by using an auxiliary steam supply.

2. If the RCICS is inoperable, the reactor may remain in operation for a period not to exceed 7 days if the HPCIS is OPERABLE during such time.
3. If Specifications 3.5.F.1 or 3.5.F.2 are not met, an orderly shutdown shall be initiated and the reactor shall be depressurized to less than 150 psig within 24 hours.

4.5.F Reactor Core Isolation Cooling System (RCICS)

4.5.F.1 (Cont'd)

- | | |
|--|--------------------------|
| b. Pump OPERABILITY | Per Specification 1.0.MM |
| c. Motor-Operated Valve OPERABILITY | Per Specification 1.0.MM |
| d. Flow Rate at normal reactor vessel operating pressure | Once/3 months |
| e. Flow Rate at 150 psig | Once/18 months |

The RCIC pump shall deliver at least 600 gpm during each flow test.

- f. Verify that each valve (manual, power-operated, or automatic) in the injection flowpath that is not locked, sealed, or otherwise secured in position, is in its correct* position. Once/Month

2. No additional surveillances are required.

* Except that an automatic valve capable of automatic return to its normal position when a signal is present may be in a position for another mode of operation.

3.5 BASES (Cont'd)

3.5.E. High Pressure Coolant Injection System (HPCIS)

The HPCIS is provided to assure that the reactor core is adequately cooled to limit fuel clad temperature in the event of a small break in the nuclear system and loss of coolant which does not result in rapid depressurization of the reactor vessel. The HPCI system permits the reactor to be shut down while maintaining sufficient reactor vessel water level inventory until the vessel is depressurized. The HPCIS continues to operate until reactor vessel pressure is below the pressure at which LPCI operation or Core Spray system operation maintains core cooling. The capacity of the system is selected to provide the required core cooling. The HPCI pump is designed to pump 5000 gpm at reactor pressures between 1120 and 150 psig. The HPCIS is not required to be operable below 150 psig since this is well within the range of the low pressure cooling systems and below the pressure of any events for which HPCI is required to provide core cooling.

The HPCIS is not designed to operate at full capacity until reactor pressure exceeds 150 psig and the steam supply to the HPCI turbine is automatically isolated before reactor pressure decreases below 100 psig. The ADS, CSS, and RHRS (LPCI) must be OPERABLE when starting up from a Cold Condition. Steam pressure is sufficient at 150 psig to run the HPCI turbine for operability testing yet, still below the shutoff head of the CSS and RHRS pumps so they will inject water into the vessel if required. The ADS provides additional backup to reduce pressure to the range where the CSS and RHRS will inject into the vessel if necessary. Considering the low reactor pressure, the redundancy and availability of CSS, RHRS, and ADS during startup from a Cold Condition, twelve hours is allowed as a reasonable time to demonstrate HPCI operability once sufficient steam pressure becomes available. The alternative to demonstrate HPCI operability prior to startup using auxiliary steam is provided for plant operating flexibility.

With the HPCIS inoperable, a seven-day period to return the system to service is justified based on the availability of the ADS, CSS, RHRS (LPCI) and the RCICS. The availability of these redundant and diversified systems provides adequate assurance of core cooling while HPCIS is out of service.

The surveillance requirements, which are based on industry codes and standards, provide adequate assurance that the HPCIS will be OPERABLE when required.

3.5 BASES (Cont'd)

3.5.F Reactor Core Isolation Cooling System (RCICS)

The RCICS functions to provide core cooling and makeup water to the reactor vessel during shutdown and isolation from the main heat sink and for certain pipe break accidents. The RCICS provides its design flow between 150 psig and 1120 psig reactor pressure. Below 150 psig, RCICS is not required to be operable since this pressure is substantially below that for any events in which RCICS is required to provide core cooling. RCICS will continue to operate below 150 psig at reduced flow until it automatically isolates at greater than or equal to 50 psig reactor steam pressure. 150 psig is also below the shutoff head of the CSS and RHRS, thus, considerable overlap exists with the cooling systems that provide core cooling at low reactor pressure.

The ADS, CSS, and RHRS (LPCI) must be OPERABLE when starting up from a Cold Condition. Steam pressure is sufficient at 150 psig to run the RCIC turbine for operability testing, yet still below the shutoff head of the CSS and RHRS pumps so they will inject water into the vessel if required. Considering the low reactor pressure and the availability of the low pressure coolant systems during startup from a Cold Condition, twelve hours is allowed as a reasonable time to demonstrate RCIC operability once sufficient steam pressure becomes available. The alternative to demonstrate RCIC operability prior to startup using auxiliary steam is provided for plant operating flexibility.

With the RCICS inoperable, a seven-day period to return the system to service is justified based on the availability of the HPCIS to cool the core and upon consideration that the average risk associated with failure of the RCICS to cool the core when required is not increased.

The surveillance requirements, which are based on industry codes and standards, provide adequate assurance that the RCICS will be OPERABLE when required.

3.5.G Automatic Depressurization System (ADS)

This specification ensures the operability of the ADS under all conditions for which the depressurization of the nuclear system is an essential response to station abnormalities.

The nuclear system pressure relief system provides automatic nuclear system depressurization for small breaks in the nuclear system so that the low-pressure coolant injection (LPCI) and the core spray subsystems can operate to protect the fuel barrier. Note that this specification applies only to the automatic feature of the pressure relief system.

Specification 3.6.D specifies the requirements for the pressure relief function of the valves. It is possible for any number of the valves assigned to the ADS to be incapable of performing their ADS functions because of instrumentation failures, yet be fully capable of performing their pressure relief function.



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. 176
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 9, 1989, 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.

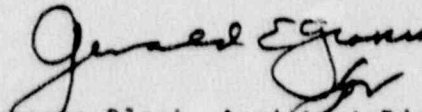
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 176, 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 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 24, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 76

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.

REMOVE

3.5/4.5-12

3.5/4.5-13

3.5/4.5-14

3.5/4.5-15

3.5/4.5-28

3.5/4.5-29

INSERT

3.5/4.5-12*

3.5/4.5-13

3.5/4.5-14

3.5/4.5-15

3.5/4.5-28

3.5/4.5-29

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.C RHR Service Water and Emergency Equipment Cooling Water Systems (EECWS) (Continued)

4. Three of the D1, D2, B1, B2 RHRSW pumps assigned to the RHR heat exchanger supplying the standby coolant supply connection may be inoperable for a period not to exceed 30 days provided the OPERABLE pump is aligned to supply the RHR heat exchanger header and the associated diesel generator and essential control valves are OPERABLE.
5. The standby coolant supply capability may be inoperable for a period not to exceed 10 days.
6. If Specifications 3.5.C.2 through 3.5.C.5 are not met, an orderly shutdown shall be initiated and the unit placed in the COLD SHUTDOWN CONDITION within 24 hours.
7. There shall be at least 2 RHRSW pumps, associated with the selected RHR pumps, aligned for RHR heat exchanger service for each reactor vessel containing irradiated fuel.

4.5.C RHR Service Water and Emergency Equipment Cooling Water Systems (EECWS) (Continued)

4. No additional surveillance is required.

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.D Equipment Area Coolers

1. The equipment area cooler associated with each RHR pump and the equipment area cooler associated with each set of core spray pumps (A and C or B and D) must be OPERABLE at all times when the pump or pumps served by that specific cooler is considered to be OPERABLE.
2. When an equipment area cooler is not OPERABLE, the pump(s) served by that cooler must be considered inoperable for Technical Specification purposes.

E. High Pressure Coolant Injection System (HPCIS)

1. The HPCI system shall be OPERABLE whenever there is irradiated fuel in the reactor vessel and the reactor vessel pressure is greater than 150 psig, except as specified in Specification 3.5.E.2. OPERABILITY shall be determined within 12 hours after reactor steam pressure reaches 150 psig from a COLD CONDITION, or alternatively PRIOR TO STARTUP by using an auxiliary steam supply.

4.5.D Equipment Area Coolers

1. Each equipment area cooler is operated in conjunction with the equipment served by that particular cooler; therefore, the equipment area coolers are tested at the same frequency as the pumps which they serve.

E. High Pressure Coolant Injection System (HPCIS)

1. HPCI Subsystem testing shall be performed as follows:
 - a. Simulated Automatic Actuation Test Once/18 months
 - b. Pump OPERABILITY Per Specification 1.0.MM
 - c. Motor Operated Valve OPERABILITY Per Specification 1.0.MM
 - d. Flow Rate at normal reactor vessel operating pressure Once/3 months

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.E High Pressure Coolant Injection System (HPCIS)

4.5.E High Pressure Coolant Injection System (HPCIS)

4.5.E.1 (Cont'd)

- e. Flow Rate at Once/18
150 psig months

The HPCI pump shall deliver at least 5000 gpm during each flow rate test.

- f. Verify that Once/Month each valve (manual, power-operated, or automatic) in the injection flow-path that is not locked, sealed, or otherwise secured in position, is in its correct* position.

- 2. If the HPCI system is inoperable, the reactor may remain in operation for a period not to exceed 7 days, provided the ADS, CSS, RHRS (LPCI), and RCICS are OPERABLE.

- 2. No additional surveillances are required.

- 3. If Specifications 3.5.E.1 or 3.5.E.2 are not met, an orderly shutdown shall be initiated and the reactor vessel pressure shall be reduced to 150 psig or less within 24 hours.

* Except that an automatic valve capable of automatic return to its ECCS position when an ECCS signal is present may be in a position for another mode of operation.

F. Reactor Core Isolation Cooling System (RCICS)

F. Reactor Core Isolation Cooling System (RCICS)

- 1. The RCICS shall be OPERABLE whenever there is irradiated fuel in the reactor vessel and the reactor vessel pressure is above 150 psig, except as specified in 3.5.F.2. OPERABILITY shall

- 1. RCIC Subsystem testing shall be performed as follows:
 - a. Simulated Auto- Once/18
matic Actuation months
Test

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.F. Reactor Core Isolation Cooling System (RCICS)

4.5.F Reactor Core Isolation Cooling System (RCICS)

3.5.F.1 (Cont'd)

4.5.F.1 (Cont'd)

be determined within 12 hours after reactor steam pressure reaches 150 psig from a COLD CONDITION or alternatively PRIOR TO STARTUP by using an auxiliary steam source.

b. Pump OPERABILITY Per Specification 1.0.MM

c. Motor-Operated Valve OPERABILITY Per Specification 1.0.MM

d. Flow Rate at normal reactor vessel operating pressure Once/3 months

e. Flow Rate at 150 psig Once/18 months

The RCIC pump shall deliver at least 600 gpm during each flow test.

f. Verify that each valve (manual, power-operated, or automatic) in the injection flowpath that is not locked, sealed, or otherwise secured in position, is in its correct* position. Once/Month

2. If the RCICS is inoperable, the reactor may remain in operation for a period not to exceed 7 days if the HPCIS is OPERABLE during such time.

3. If Specifications 3.5.F.1 or 3.5.F.2 are not met, an orderly shutdown shall be initiated and the reactor shall be depressurized to less than 150 psig within 24 hours.

2. No additional surveillances are required.

* Except that an automatic valve capable of automatic return to its normal position when a signal is present may be in a position for another mode of operation.

3.5 BASES (Cont'd)

3.5.E. High Pressure Coolant Injection System (HPCIS)

The HPCIS is provided to assure that the reactor core is adequately cooled to limit fuel clad temperature in the event of a small break in the nuclear system and loss of coolant which does not result in rapid depressurization of the reactor vessel. The HPCI system permits the reactor to be shut down while maintaining sufficient reactor vessel water level inventory until the vessel is depressurized. The HPCIS continues to operate until reactor vessel pressure is below the pressure at which LPCI operation or Core Spray system operation maintains core cooling. The capacity of the system is selected to provide the required core cooling. The HPCI pump is designed to pump 5000 gpm at reactor pressures between 1120 and 150 psig. The HPCIS is not required to be operable below 150 psig since this is well within the range of the low pressure cooling systems and below the pressure of any events for which HPCI is required to provide core cooling.

The HPCIS is not designed to operate at full capacity until reactor pressure exceeds 150 psig and the steam supply to the HPCI turbine is automatically isolated before reactor pressure decreases below 100 psig. The ADS, CSS, and RHRS (LPCI) must be OPERABLE when starting up from a Cold Condition. Steam pressure is sufficient at 150 psig to run the HPCI turbine for operability testing yet still below the shutoff head of the CSS and RHRS pumps so they will inject water into the vessel if required. The ADS provides additional backup to reduce pressure to the range where the CSS and RHRS will inject into the vessel if necessary. Considering the low reactor pressure, the redundancy and availability of CSS, RHRS, and ADS during startup from a Cold Condition, twelve hours is allowed as a reasonable time to demonstrate HPCI operability once sufficient steam pressure becomes available. The alternative to demonstrate HPCI operability prior to startup using auxiliary steam is provided for plant operating flexibility.

With the HPCIS inoperable, a seven-day period to return the system to service is justified based on the availability of the ADS, CSS, RHRS (LPCI) and the RCICS. The availability of these redundant and diversified systems provides adequate assurance of core cooling while HPCIS is out of service.

The surveillance requirements, which are based on industry codes and standards, provide adequate assurance that the HPCIS will be OPERABLE when required.

3.5 BASES (Cont'd)

3.5.F Reactor Core Isolation Cooling System (RCICS)

The RCICS functions to provide core cooling and makeup water to the reactor vessel during shutdown and isolation from the main heat sink and for certain pipe break accidents. The RCICS provides its design flow between 150 psig and 1120 psig reactor pressure. Below 150 psig, RCICS is not required to be operable since this pressure is substantially below that for any events in which RCICS is required to provide core cooling. RCICS will continue to operate below 150 psig at reduced flow until it automatically isolates at greater than or equal to 50 psig reactor steam pressure. 150 psig is also below the shutoff head of the CSS and RHRS, thus, considerable overlap exists with the cooling systems that provide core cooling at low reactor pressure.

The ADS, CSS, and RHRS (LPCI) must be OPERABLE when starting up from a Cold Condition. Steam pressure is sufficient at 150 psig to run the RCIC turbine for operability testing, yet still below the shutoff head of the CSS and RHRS pumps so they will inject water into the vessel if required. Considering the low reactor pressure and the availability of the low pressure coolant systems during startup from a Cold Condition, twelve hours is allowed as a reasonable time to demonstrate RCIC operability once sufficient steam pressure becomes available. The alternative to demonstrate RCIC operability prior to startup using auxiliary steam is provided for plant operating flexibility.

With the RCICS inoperable, a seven-day period to return the system to service is justified based on the availability of the HPCIS to cool the core and upon consideration that the average risk associated with failure of the RCICS to cool the core when required is not increased.

The surveillance requirements, which are based on industry codes and standards, provide adequate assurance that the RCICS will be OPERABLE when required.

3.5.G Automatic Depressurization System (ADS)

This specification ensures the operability of the ADS under all conditions for which the depressurization of the nuclear system is an essential response to station abnormalities.

The nuclear system pressure relief system provides automatic nuclear system depressurization for small breaks in the nuclear system so that the low-pressure coolant injection (LPCI) and the core spray subsystems can operate to protect the fuel barrier. Note that this specification applies only to the automatic feature of the pressure relief system.

Specification 3.6.D specifies the requirements for the pressure relief function of the valves. It is possible for any number of the valves assigned to the ADS to be incapable of performing their ADS functions because of instrumentation failures, yet be fully capable of performing their pressure relief function.



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. 144
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 9, 1989 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.

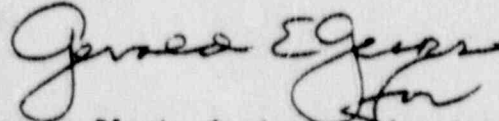
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-68 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 144, 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 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Suzanne Black, Assistant Director
for Projects

TVA Projects Division

Office of Nuclear Reactor Regulation

Attachment:

Changes to the Technical
Specifications

Date of Issuance: November 24, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 144

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.

REMOVE

3.5/4.5-12

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3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.C RHR Service Water and Emergency Equipment Cooling Water Systems (EECWS) (Continued)

4.5.C RHR Service Water and Emergency Equipment Cooling Water Systems (EECWS) (Continued)

4. One of the B1 or B2 RHRSW pumps assigned to the RHR heat exchanger supplying the standby coolant supply connection may be inoperable for a period not to exceed 30 days provided the OPEFABLE pump is aligned to supply the RHR heat exchanger header and the associated diesel generator and essential control valves are OPERABLE.
5. The standby coolant supply capability may be inoperable for a period not to exceed 10 days.
6. If Specifications 3.5.C.2 through 3.5.C.5 are not met, an orderly shutdown shall be initiated and the unit placed in the COLD SHUTDOWN CONDITION within 24 hours.
7. There shall be at least 2 RHRSW pumps, associated with the selected RHR pumps, aligned for RHR heat exchanger service for each reactor vessel containing irradiated fuel.

4. No additional surveillance is required.

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.D Equipment Area Coolers

1. The equipment area cooler associated with each RHR pump and the equipment area cooler associated with each set of core spray pumps (A and C or B and D) must be OPERABLE at all times when the pump or pumps served by that specific cooler is considered to be OPERABLE.
2. When an equipment area cooler is not OPERABLE, the pump(s) served by that cooler must be considered inoperable for Technical Specification purposes.

E. High Pressure Coolant Injection System (HPCIS)

1. The HPCI system shall be OPERABLE whenever there is irradiated fuel in the reactor vessel and the reactor vessel pressure is greater than 150 psig, except as specified in Specification 3.5.E.2. OPERABILITY shall be determined within 12 hours after reactor steam pressure reaches 150 psig from a COLD CONDITION, or alternatively PRIOR TO STARTUP by using an auxiliary steam supply.

4.5.D Equipment Area Coolers

1. Each equipment area cooler is operated in conjunction with the equipment served by that particular cooler; therefore, the equipment area coolers are tested at the same frequency as the pumps which they serve.

E. High Pressure Coolant Injection System (HPCIS)

1. HPCI Subsystem testing shall be performed as follows:
 - a. Simulated Automatic Actuation Test Once/18 months
 - b. Pump OPERABILITY Per Specification 1.0.MM
 - c. Motor Operated Valve OPERABILITY Per Specification 1.0.MM
 - d. Flow Rate at normal reactor vessel operating pressure Once/3 months

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.E High Pressure Coolant Injection System (HPCIS)

4.5.E High Pressure Coolant Injection System (HPCIS)

4.5.E.1 (Cont'd)

- e. Flow Rate at Once/18
150 psig months

The HPCI pump shall deliver at least 5000 gpm during each flow rate test.

- f. Verify that Once/Month
each valve
(manual, power-operated, or automatic) in the injection flow-path that is not locked, sealed, or otherwise secured in position, is in its correct* position.

- 2. If the HPCI system is inoperable, the reactor may remain in operation for a period not to exceed 7 days, provided the ADS, CSS, RHRS (LPCI), and RCICS are OPERABLE.

- 2. No additional surveillances are required.

- 3. If Specifications 3.5.E.1 or 3.5.E.2 are not met, an orderly shutdown shall be initiated and the reactor vessel pressure shall be reduced to 150 psig or less within 24 hours.

* Except that an automatic valve capable of automatic return to its ECCS position when an ECCS signal is present may be in a position for another mode of operation.

F. Reactor Core Isolation Cooling System (RCICS)

F. Reactor Core Isolation Cooling System (RCICS)

- 1. The RCICS shall be OPERABLE whenever there is irradiated fuel in the reactor vessel and the reactor vessel pressure is above 150 psig, except as specified in 3.5.F.2. OPERABILITY shall

- 1. RCIC Subsystem testing shall be performed as follows:
 - a. Simulated Auto- Once/18
matic Actuation: months
Test

3.5/4.5 CORE AND CONTAINMENT COOLING SYSTEMS

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.5.F. Reactor Core Isolation Cooling System (RCICS)

3.5.F.1 (Cont'd)

be determined within 12 hours after reactor steam pressure reaches 150 psig from a COLD CONDITION or alternatively PRIOR TO STARTUP by using an auxiliary steam supply.

2. If the RCICS is inoperable, the reactor may remain in operation for a period not to exceed 7 days if the HPCIS is OPERABLE during such time.
3. If Specifications 3.5.F.1 or 3.5.F.2 are not met, an orderly shutdown shall be initiated and the reactor shall be depressurized to less than 150 psig within 24 hours.

4.5.F Reactor Core Isolation Cooling System (RCICS)

4.5.F.1 (Cont'd)

- | | |
|--|--------------------------|
| b. Pump OPERABILITY | Per Specification 1.0.MM |
| c. Motor-Operated Valve OPERABILITY | Per Specification 1.0.MM |
| d. Flow Rate at normal reactor vessel operating pressure | Once/3 months |

- | | |
|--------------------------|----------------|
| e. Flow Rate at 150 psig | Once/18 months |
|--------------------------|----------------|

The RCIC pump shall deliver at least 600 gpm during each flow test.

- | | |
|---|------------|
| f. Verify that each valve (manual, power-operated, or automatic) in the injection flowpath that is not locked, sealed, or otherwise secured in position, is in its correct* position. | Once/Month |
|---|------------|

2. No additional surveillances are required.

* Except that an automatic valve capable of automatic return to its normal position when a signal is present may be in a position for another mode of operation.

3.5 BASES (Cont'd)

3.5.E. High Pressure Coolant Injection System (HPCIS)

The HPCIS is provided to assure that the reactor core is adequately cooled to limit fuel clad temperature in the event of a small break in the nuclear system and loss of coolant which does not result in rapid depressurization of the reactor vessel. The HPCI system permits the reactor to be shut down while maintaining sufficient reactor vessel water level inventory until the vessel is depressurized. The HPCIS continues to operate until reactor vessel pressure is below the pressure at which LPCI operation or Core Spray system operation maintains core cooling. The capacity of the system is selected to provide the required core cooling. The HPCI pump is designed to pump 5000 gpm at reactor pressures between 1120 and 150 psig. The HPCIS is not required to be operable below 150 psig since this is well within the range of the low pressure cooling systems and below the pressure of any events for which HPCI is required to provide core cooling.

The HPCIS is not designed to operate at full capacity until reactor pressure exceeds 150 psig and the steam supply to the HPCI turbine is automatically isolated before reactor pressure decreases below 100 psig. The ADS, CSS, and RHRS (LPCI) must be OPERABLE when starting up from a Cold Condition. Steam pressure is sufficient at 150 psig to run the HPCI turbine for operability testing, yet still below the shutoff head of the CSS and RHRS pumps so they will inject water into the vessel if required. The ADS provides additional backup to reduce pressure to the range where the CSS and RHRS will inject into the vessel if necessary. Considering the low reactor pressure, the redundancy and availability of CSS, RHRS, and ADS during startup from a Cold Condition, twelve hours is allowed as a reasonable time to demonstrate HPCI operability once sufficient steam pressure becomes available. The alternative to demonstrate HPCI operability prior to startup using auxiliary steam is provided for plant operating flexibility.

With the HPCIS inoperable, a seven-day period to return the system to service is justified based on the availability of the ADS, CSS, RHRS (LPCI) and the RCICS. The availability of these redundant and diversified systems provides adequate assurance of core cooling while HPCIS is out of service.

The surveillance requirements, which are based on industry codes and standards, provide adequate assurance that the HPCIS will be OPERABLE when required.

3.5 BASES (Cont'd)

3.5.F Reactor Core Isolation Cooling System (RCICS)

The RCICS functions to provide core cooling and makeup water to the reactor vessel during shutdown and isolation from the main heat sink and for certain pipe break accidents. The RCICS provides its design flow between 150 psig and 1120 psig reactor pressure. Below 150 psig, RCICS is not required to be operable since this pressure is substantially below that for any events in which RCICS is required to provide core cooling. RCICS will continue to operate below 150 psig at reduced flow until it automatically isolates at greater than or equal to 50 psig reactor steam pressure. 150 psig is also below the shutoff head of the CSS and RHRS, thus, considerable overlap exists with the cooling systems that provide core cooling at low reactor pressure.

The ADS, CSS, and RHRS (LPCI) must be OPERABLE when starting up from a Cold Condition. Steam pressure is sufficient at 150 psig to run the RCIC turbine for operability testing, yet still below the shutoff head of the CSS and RHRS pumps so they will inject water into the vessel if required. Considering the low reactor pressure and the availability of the low pressure coolant systems during startup from a Cold Condition, twelve hours is allowed as a reasonable time to demonstrate RCIC operability once sufficient steam pressure becomes available. The alternative to demonstrate RCIC operability prior to startup using auxiliary steam is provided for plant operating flexibility.

With the RCICS inoperable, a seven-day period to return the system to service is justified based on the availability of the HPCIS to cool the core and upon consideration that the average risk associated with failure of the RCICS to cool the core when required is not increased.

The surveillance requirements, which are based on industry codes and standards, provide adequate assurance that the RCICS will be OPERABLE when required.

3.5.G Automatic Depressurization System (ADS)

This specification ensures the operability of the ADS under all conditions for which the depressurization of the nuclear system is an essential response to station abnormalities.

The nuclear system pressure relief system provides automatic nuclear system depressurization for small breaks in the nuclear system so that the low-pressure coolant injection (LPCI) and the core spray subsystems can operate to protect the fuel barrier. Note that this specification applies only to the automatic feature of the pressure relief system.

Specification 3.6.D specifies the requirements for the pressure relief function of the valves. It is possible for any number of the valves assigned to the ADS to be incapable of performing their ADS functions because of instrumentation failures, yet be fully capable of performing their pressure relief function.