



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

BROWNS FERRY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 210  
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 December 23, 1993, complies with the standards and requirements of the Atomic Energy of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 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.

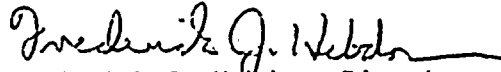
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-33 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 210, 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: July 5, 1994



ATTACHMENT TO LICENSE AMENDMENT NO. 210

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. Overleaf\* pages are provided to maintain document completeness.

REMOVE

vii  
viii  
3.6/4.6-15  
3.6/4.6-16  
3.6/4.6-17  
3.6/4.6-18  
3.6/4.6-19  
3.6/4.6-20  
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3.6/4.6-34  
3.6/4.6-35

INSERT

vii  
viii\*  
3.6/4.6-15  
3.6/4.6-16  
3.6/4.6-17  
3.6/4.6-18  
3.6/4.6-19\*  
3.6/4.6-20  
3.6/4.6-23b  
3.6/4.6-23c  
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LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.6.H. Snubbers

During all modes of operation, all snubbers shall be OPERABLE except as noted in 3.6.H.1. All safety-related snubbers are listed in Plant Surveillance Instructions.

1. With one or more snubber(s) inoperable on a system that is required to be OPERABLE in the current plant condition, within 72 hours replace or restore the inoperable snubber(s) to OPERABLE status and perform an engineering evaluation on the attached component or declare the attached system inoperable and follow the appropriate Limiting Condition statement for that system.

4.6.H. Snubbers

Each safety-related snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program and the requirements of Specification 3.6.H/4.6.H. These snubbers are listed in Plant Surveillance Instructions.

1. Inspection Types

As used in this specification, "type of snubber" shall mean snubbers of the same design and manufacturer, irrespective of capacity.

2. Visual Inspections

Snubbers are categorized as inaccessible or accessible during reactor operation. Each of these categories (inaccessible and accessible) may be inspected independently according to the schedule determined by Table 4.6.H-1. The visual inspection interval for each type of snubber shall be determined based upon the criteria provided in Table 4.6.H-1 and the first inspection interval determined using this criteria shall be based upon the previous inspection interval as established by the requirements in effect before amendment No. 210.

4.6.H. Snubbers3. Visual Inspection  
Acceptance Criteria

Visual inspections shall verify that (1) the snubber has no visible indications of damage or impaired OPERABILITY, (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional. Snubbers which appear inoperable as a result of visual inspections shall be classified unacceptable and may be reclassified acceptable for the purpose of establishing the next visual inspection interval, provided that (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers irrespective of type that may be generically susceptible; and (2) the affected snubber is functionally tested in the as-found condition and determined OPERABLE per Specification 4.6.H.5. A review and evaluation shall be performed and documented to justify continued operation with an unacceptable snubber. If continued operation cannot be justified, the snubber shall be declared inoperable and the LIMITING CONDITIONS FOR OPERATION shall be met.



4.6.H Snubbers

4.6.H.3 (Cont'd)

Additionally, snubbers attached to sections of safety-related systems that have experienced unexpected potentially damaging transients since the last inspection period shall be evaluated for the possibility of concealed damage and functionally tested, if applicable, to confirm OPERABILITY. Snubbers which have been made inoperable as the result of unexpected transients, isolated damage, or other random events, when the provisions of 4.6.H.7 and 4.6.H.8 have been met and any other appropriate corrective action implemented, shall not be counted in determining the next visual inspection interval.



4.6.H. Snubbers

4. FUNCTIONAL TEST Schedule, Lot Size, and Composition

During each refueling outage, a representative sample of 10% of the total of each type of safety-related snubbers in use in the plant shall be functionally tested either in place or in a bench test.

The representative sample selected for functional testing shall include the various configurations, operating environments, and the range of size and capacity of snubbers within the types. The representative sample should be weighed to include more snubbers from severe service areas such as near heavy equipment.

The stroke setting and the security of fasteners for attachment of the snubbers to the component and to the snubber anchorage shall be verified on snubbers selected for FUNCTIONAL TESTS.



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4.6.H. Snubbers

5. FUNCTIONAL TEST Acceptance Criteria

The snubber FUNCTIONAL TEST shall verify that:

- a. Activation (restraining action) is achieved in both tension and compression within the specified range, except that inertia dependent, acceleration limiting mechanical snubbers may be tested to verify only that activation takes place in both directions of travel.
- b. Snubber bleed, or release where required, is present in both compression and tension within the specified range.
- c. For mechanical snubbers, the force required to initiate or maintain motion of the snubber is not great enough to overstress the attached piping or component during thermal movement, or to indicate impending failure of the snubber.
- d. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.



4.6.H. Snubbers

4.6.H.5 (Cont'd)

- e. Testing methods may be used to measure parameters indirectly or parameters other than those specified if those results can be correlated to the specified parameters through established methods.

6. FUNCTIONAL TEST Failure Analysis and Additional Test Lots

An engineering evaluation shall be made of each failure to meet the FUNCTIONAL TEST acceptance criteria to determine the cause of the failure. The result of this analysis shall be used, if applicable, in selecting snubbers to be tested in the subsequent lot in an effort to determine the OPERABILITY of other snubbers which may be subject to the same failure mode. Selection of snubbers for future testing may also be based on the failure analysis. For each snubber that does not meet the FUNCTIONAL TEST acceptance criteria, an additional lot equal to 10 percent of the remainder of that type of snubbers shall be functionally tested. Testing shall continue until no additional inoperable snubbers are found within subsequent lots or all snubbers of the original FUNCTIONAL TEST type have been tested or all suspect snubbers identified by the failure analysis have been tested, as applicable.



Table 4.6.H-1  
**SNUBBER VISUAL INSPECTION INTERVAL**

Population or Category (Notes 1 and 2)	NUMBER OF UNACCEPTABLE SNUBBERS		
	Column A Extend Interval (Notes 3 and 6)	Column B Repeat Interval (Notes 4 and 6)	Column C Reduce Interval (Notes 5 and 6)
1	0	0	1
80	0	0	2
100	0	1	4
150	0	3	8
200	2	5	13
300	5	12	25
400	8	18	36
500	12	24	48
750	20	40	78
1000 or more	29	56	109

**Note 1:** The next visual inspection interval for a snubber population or category size shall be determined based upon the previous inspection interval and the number of unacceptable snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. However, the licensee must make and document that decision before any inspection and shall use that decision as the basis upon which to determine the next inspection interval for that category.

**Note 2:** Interpolation between population or category sizes and the number of unacceptable snubbers is permissible. Use next lower integer for the value of the limit for Columns A, B, or C if that integer includes a fractional value of unacceptable snubbers as determined by interpolation.

**Note 3:** If the number of unacceptable snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months.



Table 4.6.H-1 (Continued)

SNUBBER VISUAL INSPECTION INTERVAL

- Note 4: If the number of unacceptable snubbers is equal to or less than the number in Column B but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.
- Note 5: If the number of unacceptable snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of unacceptable snubbers is less than the number in Column C, but greater than the number in Column B, the next interval shall be reduced proportionally by interpolation, that is, the previous interval shall be reduced by a factor that is one-third of the ratio of the difference between the number of unacceptable snubbers found during the previous interval and the number in Column B to the difference in the numbers in Columns B and C.
- Note 6: The provisions of Specification 1.0.LL are applicable for all inspection intervals up to and including 48 months.

### 3.6/4.6 BASES

#### REFERENCES (Cont'd)

6. Mechanical Maintenance Instruction 53 (Evaluation of Corrosion Damage of Piping Components Which Were Exposed to Residue From March 22, 1975 Fire)
7. Plant Safety Analysis (BFNP FSAR Subsection 4.12)

### 3.6.H/4.6.H Snubbers

Snubbers are designed to prevent unrestrained pipe or component motion under dynamic loads as might occur during an earthquake or severe transient, while allowing normal thermal motion during startup and shutdown. The consequence of an inoperable snubber is an increase in the probability of structural damage to piping or components as a result of a seismic or other event initiating dynamic loads. It is therefore required that all snubbers required to protect the primary coolant system or any other safety system or component be operable during reactor operation.

Because the protection is required only during relatively low probability events, a period of 72 hours is allowed to replace or restore the inoperable snubber to operable status and perform an engineering evaluation on the supported component or declare the supported system inoperable and follow the appropriate limiting condition for operation statement for that system. The engineering evaluation is performed to determine whether the mode of failure of the snubber has adversely affected any safety-related component or system.

To verify snubber operability FUNCTIONAL TESTS shall be performed during the refueling outages, at approximately 18-month intervals.

These tests will include stroking of the snubbers to verify proper movement, activation, and bleed or release. Ten percent represents an adequate sample for such tests. Observed failures on these samples will require an engineering analysis and testing of additional units. If the engineering analysis results in the determination that the failure of a snubber to activate or to stroke (i.e., seized components) is the result of manufacture or design deficiency, all snubbers subject to the same defect shall be functionally tested. A thorough visual inspection of the snubber threaded attachments to the pipe or components and the anchorage will be made in conjunction with all required FUNCTIONAL TESTS. The stroke setting of the snubbers selected for functional testing also will be verified.

All safety-related snubbers are also visually inspected for overall integrity and operability. The inspection will include verification of proper orientation, adequate fluid level if applicable, and proper attachment of the snubber to piping and structures. The removal of insulation or the verification of torque values for threaded fasteners is not required for visual inspections.





### 3.6/4.6 BASES (Continued)

The visual inspection frequency is based upon maintaining a constant level of snubber protection. The number of inoperable snubbers found during a required inspection determines the time interval for the next required inspection. Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. However, the results of such early inspections performed before the original required time interval has elapsed (nominal time less 25 percent) may not be used to lengthen the required inspection interval. Any inspection whose results require a shorter inspection interval will override the previous schedule.

When the cause of the rejection of a snubber in a visual inspection is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible and operability verified by inservice functional testing, if applicable, that snubber may be reclassified as operable. Generically susceptible snubbers are those which are of a specific make or model and have the same design features directly related to rejection of the snubber, or are similarly located or exposed to the same environmental conditions such as temperature, radiation, and vibration. Inspection types may be established based on design features, and installed conditions which may be expected to be generic. Each of these inspection types is inspected and tested separately unless an engineering analysis indicates the inspection type is improperly constituted. All suspect snubbers are subject to inspection and testing regardless of inspection type.





UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 225  
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 December 23, 1993, 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.



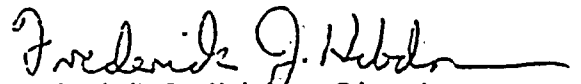
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 225, 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: July 5, 1994



ATTACHMENT TO LICENSE AMENDMENT NO. 225

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

vii  
viii  
3.6/4.6-15  
3.6/4.6-16  
3.6/4.6-17  
3.6/4.6-18  
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INSERT

vii  
viii\*  
3.6/4.6-15  
3.6/4.6-16  
3.6/4.6-17  
3.6/4.6-18\*  
3.6/4.6-19\*  
3.6/4.6-20  
3.6/4.6-23b  
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4.2.G	Surveillance Requirements for Control Room Isolation Instrumentation . . . . .	3.2/4.2-56
4.2.H	Minimum Test and Calibration Frequency for Flood Protection Instrumentation. . . . .	3.2/4.2-57
4.2.J	Seismic Monitoring Instrument Surveillance Requirements. . . . .	3.2/4.2-58
4.2.K	Explosive Gas Instrumentation Surveillance. . . . .	3.2/4.2-62
4.2.L	ATWS-Recirculation Pump Trip (RPT) Instrumentation Surveillance . . . . .	3.2/4.2-63a
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3.5.M-1	BFN Power/Flow Stability Regions . . . . .	3.5/4.5-22a
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4.8.1.b	Land Site Boundary . . . . .	3.8/4.8-8



LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.6.H. Snubbers

During all modes of operation, all snubbers shall be OPERABLE except as noted in 3.6.H.1. All safety-related snubbers are listed in Plant Surveillance Instructions.

1. With one or more snubber(s) inoperable on a system that is required to be OPERABLE in the current plant condition, within 72 hours replace or restore the inoperable snubber(s) to OPERABLE status and perform an engineering evaluation on the attached component or declare the attached system inoperable and follow the appropriate Limiting Condition statement for that system.

4.6.H. Snubbers

Each safety-related snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program and the requirements of Specification 3.6.H/4.6.H. These snubbers are listed in Plant Surveillance Instructions.

1. Inspection Types

As used in this specification, "type of snubber" shall mean snubbers of the same design and manufacturer, irrespective of capacity.

2. Visual Inspections

Snubbers are categorized as inaccessible or accessible during reactor operation. Each of these categories (inaccessible and accessible) may be inspected independently according to the schedule determined by Table 4.6.H-1. The visual inspection interval for each type of snubber shall be determined based upon the criteria provided in Table 4.6.H-1 and the first inspection interval determined using this criteria shall be based upon the previous inspection interval as established by the requirements in effect before amendment No. 225.



4.6.H. Snubbers

3. Visual Inspection  
Acceptance Criteria

Visual inspections shall verify that (1) the snubber has no visible indications of damage or impaired OPERABILITY, (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional. Snubbers which appear inoperable as a result of visual inspections shall be classified unacceptable and may be reclassified acceptable for the purpose of establishing the next visual inspection interval, provided that (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers irrespective of type that may be generically susceptible; and (2) the affected snubber is functionally tested in the as-found condition and determined OPERABLE per Specification 4.6.H.5. A review and evaluation shall be performed and documented to justify continued operation with an unacceptable snubber. If continued operation cannot be justified, the snubber shall be declared inoperable and the LIMITING CONDITIONS FOR OPERATION shall be met.





4.6.H Snubbers

4.6.H.3 (Cont'd)

Additionally, snubbers attached to sections of safety-related systems that have experienced unexpected potentially damaging transients since the last inspection period shall be evaluated for the possibility of concealed damage and functionally tested, if applicable, to confirm OPERABILITY. Snubbers which have been made inoperable as the result of unexpected transients, isolated damage, or other random events, when the provisions of 4.6.H.7 and 4.6.H.8 have been met and any other appropriate corrective action implemented, shall not be counted in determining the next visual inspection interval.



4.6.H. Snubbers

4. FUNCTIONAL TEST Schedule, Lot Size, and Composition

During each refueling outage, a representative sample of 10% of the total of each type of safety-related snubbers in use in the plant shall be functionally tested either in place or in a bench test.

The representative sample selected for functional testing shall include the various configurations, operating environments, and the range of size and capacity of snubbers within the types. The representative sample should be weighed to include more snubbers from severe service areas such as near heavy equipment.

The stroke setting and the security of fasteners for attachment of the snubbers to the component and to the snubber anchorage shall be verified on snubbers selected for FUNCTIONAL TESTS.

4.6.H. Snubbers

5. FUNCTIONAL TEST Acceptance Criteria

The snubber FUNCTIONAL TEST shall verify that:

a. Activation (restraining action) is achieved in both tension and compression within the specified range; except that inertia dependent, acceleration limiting mechanical snubbers may be tested to verify only that activation takes place in both directions of travel.

b. Snubber bleed, or release where required, is present in both compression and tension within the specified range.

c. For mechanical snubbers, the force required to initiate or maintain motion of the snubber is not great enough to overstress the attached piping or component during thermal movement, or to indicate impending failure of the snubber.

d. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.



4.6.H. Snubbers

4.6.H.5 (Cont'd)

e. Testing methods may be used to measure parameters indirectly or parameters other than those specified if those results can be correlated to the specified parameters through established methods.

6. FUNCTIONAL TEST Failure Analysis and Additional Test Lots

An engineering evaluation shall be made of each failure to meet the FUNCTIONAL TEST acceptance criteria to determine the cause of the failure. The result of this analysis shall be used, if applicable, in selecting snubbers to be tested in the subsequent lot in an effort to determine the OPERABILITY of other snubbers which may be subject to the same failure mode. Selection of snubbers for future testing may also be based on the failure analysis. For each snubber that does not meet the FUNCTIONAL TEST acceptance criteria, an additional lot equal to 10 percent of the remainder of that type of snubbers shall be functionally tested. Testing shall continue until no additional inoperable snubbers are found within subsequent lots or all snubbers of the original FUNCTIONAL TEST type have been tested or all suspect snubbers identified by the failure analysis have been tested, as applicable.



Table 4.6.H-1  
**SNUBBER VISUAL INSPECTION INTERVAL**

Population or Category (Notes 1 and 2)	NUMBER OF UNACCEPTABLE SNUBBERS		
	Column A Extend Interval (Notes 3 and 6)	Column B Repeat Interval (Notes 4 and 6)	Column C Reduce Interval (Notes 5 and 6)
1	0	0	1
80	0	0	2
100	0	1	4
150	0	3	8
200	2	5	13
300	5	12	25
400	8	18	36
500	12	24	48
750	20	40	78
1000 or more	29	56	109

**Note 1:** The next visual inspection interval for a snubber population or category size shall be determined based upon the previous inspection interval and the number of unacceptable snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. However, the licensee must make and document that decision before any inspection and shall use that decision as the basis upon which to determine the next inspection interval for that category.

**Note 2:** Interpolation between population or category sizes and the number of unacceptable snubbers is permissible. Use next lower integer for the value of the limit for Columns A, B, or C if that integer includes a fractional value of unacceptable snubbers as determined by interpolation.

**Note 3:** If the number of unacceptable snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months.





Table 4.6.H-1 (Continued)

SNUBBER VISUAL INSPECTION INTERVAL

- Note 4: If the number of unacceptable snubbers is equal to or less than the number in Column B but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.
- Note 5: If the number of unacceptable snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of unacceptable snubbers is less than the number in Column C, but greater than the number in Column B, the next interval shall be reduced proportionally by interpolation, that is, the previous interval shall be reduced by a factor that is one-third of the ratio of the difference between the number of unacceptable snubbers found during the previous interval and the number in Column B to the difference in the numbers in Columns B and C.
- Note 6: The provisions of Specification 1.0.LL are applicable for all inspection intervals up to and including 48 months.



### 3.6/4.6 BASES

#### 3.6.H/4.6.H Snubbers

Snubbers are designed to prevent unrestrained pipe or component motion under dynamic loads as might occur during an earthquake or severe transient, while allowing normal thermal motion during startup and shutdown. The consequence of an inoperable snubber is an increase in the probability of structural damage to piping or components as a result of a seismic or other event initiating dynamic loads. It is therefore required that all snubbers required to protect the primary coolant system or any other safety system or component be operable during reactor operation.

Because the protection is required only during relatively low probability events, a period of 72 hours is allowed to replace or restore the inoperable snubber to operable status and perform an engineering evaluation on the supported component or declare the supported system inoperable and follow the appropriate limiting condition for operation statement for that system. The engineering evaluation is performed to determine whether the mode of failure of the snubber has adversely affected any safety-related component or system.

To verify snubber operability **FUNCTIONAL TESTS** shall be performed during the refueling outages, at approximately 18-month intervals.

These tests will include stroking of the snubbers to verify proper movement, activation, and bleed or release. Ten percent represents an adequate sample for such tests. Observed failures on these samples will require an engineering analysis and testing of additional units. If the engineering analysis results in the determination that the failure of a snubber to activate or to stroke (i.e., seized components) is the result of manufacture or design deficiency, all snubbers subject to the same defect shall be functionally tested. A thorough visual inspection of the snubber threaded attachments to the pipe or components and the anchorage will be made in conjunction with all required **FUNCTIONAL TESTS**. The stroke setting of the snubbers selected for functional testing also will be verified.

All safety-related snubbers are also visually inspected for overall integrity and operability. The inspection will include verification of proper orientation, adequate fluid level if applicable, and proper attachment of the snubber to piping and structures. The removal of insulation or the verification of torque values for threaded fasteners is not required for visual inspections.



### 3.6/4.6 BASES

#### 3.6/4.6 BASES (Continued)

The visual inspection frequency is based upon maintaining a constant level of snubber protection. The number of inoperable snubbers found during a required inspection determines the time interval for the next required inspection. Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. However, the results of such early inspections performed before the original required time interval has elapsed (nominal time less 25 percent) may not be used to lengthen the required inspection interval. Any inspection whose results require a shorter inspection interval will override the previous schedule.

When the cause of the rejection of a snubber in a visual inspection is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible and operability verified by inservice functional testing, if applicable, that snubber may be reclassified as operable. Generically susceptible snubbers are those which are of a specific make or model and have the same design features directly related to rejection of the snubber, or are similarly located or exposed to the same environmental conditions such as temperature, radiation, and vibration. Inspection types may be established based on design features, and installed conditions which may be expected to be generic. Each of these inspection types is inspected and tested separately unless an engineering analysis indicates the inspection type is improperly constituted. All suspect snubbers are subject to inspection and testing regardless of inspection type.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY  
DOCKET NO. 50-296  
BROWNS FERRY NUCLEAR PLANT, UNIT 3  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 183  
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 December 23, 1993, 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.

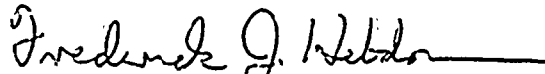
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-68 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 183, 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: July 5, 1994



ATTACHMENT TO LICENSE AMENDMENT NO. 183 ..

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

vii  
viii  
3.6/4.6-15  
3.6/4.6-16  
3.6/4.6-17  
3.6/4.6-18  
3.6/4.6-19  
3.6/4.6-20  
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--  
3.6/4.6-34  
3.6/4.6-35

INSERT

vii  
viii\*  
3.6/4.6-15  
3.6/4.6-16  
3.6/4.6-17  
3.6/4.6-18  
3.6/4.6-19\*  
3.6/4.6-20  
3.6/4.6-23b  
3.6/4.6-23c  
3.6/4.6-34  
3.6/4.6-35



LIST OF TABLES (Cont'd)

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4.2.F	Minimum Test and Calibration Frequency for Surveillance Instrumentation . . . . .	3.2/4.2-53
4.2.G	Surveillance Requirements for Control Room Isolation Instrumentation. . . . .	3.2/4.2-55
4.2.H	Minimum Test and Calibration Frequency for Flood Protection Instrumentation . . . . .	3.2/4.2-56
4.2.J	Seismic Monitoring Instrument Surveillance Requirements . . . . .	3.2/4.2-57
4.2.K	Explosive Gas Instrumentation Surveillance . . . . .	3.2/4.2-61
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3.5-1	Minimum RHRSW and BECW Pump Assignment. . . . .	3.5/4.5-11
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4.9.A.4.C	Voltage Relay Setpoints/Diesel Generator Start. . . . .	3.9/4.9-17
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<u>Figure</u>	<u>Title</u>	<u>Page No.</u>
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2.1-2	APRM Flow Bias Scram Vs. Reactor Core Flow . . . . .	1.1/2.1-7
4.1-1	Graphical Aid in the Selection of an Adequate Interval Between Tests . . . . .	3.1/4.1-12
4.2-1	System Unavailability. . . . .	3.2/4.2-63
3.5.M-1	BFN Power/Flow Stability Regions . . . . .	3.5/4.5-21
3.6-1	Minimum Temperature °F Above Change in Transient Temperature. . . . .	3.6/4.6-24
4.8.1.a	Gaseous Release Points and Elevation . . . . .	3.8/4.8-7
4.8.1.b	Land Site Boundary . . . . .	3.8/4.8-8



LIMITING CONDITIONS FOR OPERATION

3.6.H. Snubbers

During all modes of operation, all snubbers shall be OPERABLE except as noted in 3.6.H.1. All safety-related snubbers are listed in Plant Surveillance Instructions.

1. With one or more snubber(s) inoperable on a system that is required to be OPERABLE in the current plant condition, within 72 hours replace or restore the inoperable snubber(s) to OPERABLE status and perform an engineering evaluation on the attached component or declare the attached system inoperable and follow the appropriate Limiting Condition statement for that system.

SURVEILLANCE REQUIREMENTS

4.6.H. Snubbers

Each safety-related snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program and the requirements of Specification 3.6.H/4.6.H. These snubbers are listed in Plant Surveillance Instructions.

1. Inspection Types

As used in this specification, "type of snubber" shall mean snubbers of the same design and manufacturer, irrespective of capacity.

2. Visual Inspections

Snubbers are categorized as inaccessible or accessible during reactor operation. Each of these categories (inaccessible and accessible) may be inspected independently according to the schedule determined by Table 4.6.H-1. The visual inspection interval for each type of snubber shall be determined based upon the criteria provided in Table 4.6.H-1 and the first inspection interval determined using this criteria shall be based upon the previous inspection interval as established by the requirements in effect before amendment No. 183.



4.6.H. Snubbers

3. Visual Inspection  
Acceptance Criteria

Visual inspections shall verify that (1) the snubber has no visible indications of damage or impaired OPERABILITY, (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional. Snubbers which appear inoperable as a result of visual inspections shall be classified unacceptable and may be reclassified acceptable for the purpose of establishing the next visual inspection interval, provided that (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers irrespective of type that may be generically susceptible; and (2) the affected snubber is functionally tested in the as-found condition and determined OPERABLE per Specification 4.6.H.5. A review and evaluation shall be performed and documented to justify continued operation with an unacceptable snubber. If continued operation cannot be justified, the snubber shall be declared inoperable and the LIMITING CONDITIONS FOR OPERATION shall be met.





4.6.H Snubbers

4.6.H.3 (Cont'd)

Additionally, snubbers attached to sections of safety-related systems that have experienced unexpected potentially damaging transients since the last inspection period shall be evaluated for the possibility of concealed damage and functionally tested, if applicable, to confirm OPERABILITY. Snubbers which have been made inoperable as the result of unexpected transients, isolated damage, or other random events, when the provisions of 4.6.H.7 and 4.6.H.8 have been met and any other appropriate corrective action implemented, shall not be counted in determining the next visual inspection interval.

4.6.H. Snubbers

4. FUNCTIONAL TEST Schedule, Lot Size, and Composition

During each refueling outage, a representative sample of 10% of the total of each type of safety-related snubbers in use in the plant shall be functionally tested either in place or in a bench test.

The representative sample selected for functional testing shall include the various configurations, operating environments, and the range of size and capacity of snubbers within the types. The representative sample should be weighed to include more snubbers from severe service areas such as near heavy equipment.

The stroke setting and the security of fasteners for attachment of the snubbers to the component and to the snubber anchorage shall be verified on snubbers selected for FUNCTIONAL TESTS.



4.6.H. Snubbers

5. FUNCTIONAL TEST Acceptance Criteria

The snubber FUNCTIONAL TEST shall verify that:

- a. Activation (restraining action) is achieved in both tension and compression within the specified range, except that inertia dependent, acceleration limiting mechanical snubbers may be tested to verify only that activation takes place in both directions of travel.
- b. Snubber bleed, or release where required, is present in both compression and tension within the specified range.
- c. For mechanical snubbers, the force required to initiate or maintain motion of the snubber is not great enough to overstress the attached piping or component during thermal movement, or to indicate impending failure of the snubber.
- d. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.

4.6.H. Snubbers

4.6.H.5 (Cont'd)

e. Testing methods may be used to measure parameters indirectly or parameters other than those specified if those results can be correlated to the specified parameters through established methods.

6. FUNCTIONAL TEST Failure Analysis and Additional Test Lots

An engineering evaluation shall be made of each failure to meet the FUNCTIONAL TEST acceptance criteria to determine the cause of the failure. The result of this analysis shall be used, if applicable, in selecting snubbers to be tested in the subsequent lot in an effort to determine the OPERABILITY of other snubbers which may be subject to the same failure mode. Selection of snubbers for future testing may also be based on the failure analysis. For each snubber that does not meet the FUNCTIONAL TEST acceptance criteria, an additional lot equal to 10 percent of the remainder of that type of snubbers shall be functionally tested. Testing shall continue until no additional inoperable snubbers are found within subsequent lots or all snubbers of the original FUNCTIONAL TEST type have been tested or all suspect snubbers identified by the failure analysis have been tested, as applicable.



8 2 1

8 2 1

Table 4.6.H-1

## SNUBBER VISUAL INSPECTION INTERVAL

Population or Category (Notes 1 and 2)	NUMBER OF UNACCEPTABLE SNUBBERS		
	Column A Extend Interval (Notes 3 and 6)	Column B Repeat Interval (Notes 4 and 6)	Column C Reduce Interval (Notes 5 and 6)
1	0	0	1
80	0	0	2
100	0	1	4
150	0	3	8
200	2	5	13
300	5	12	25
400	8	18	36
500	12	24	48
750	20	40	78
1000 or more	29	56	109

**Note 1:** The next visual inspection interval for a snubber population or category size shall be determined based upon the previous inspection interval and the number of unacceptable snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. However, the licensee must make and document that decision before any inspection and shall use that decision as the basis upon which to determine the next inspection interval for that category.

**Note 2:** Interpolation between population or category sizes and the number of unacceptable snubbers is permissible. Use next lower integer for the value of the limit for Columns A, B, or C if that integer includes a fractional value of unacceptable snubbers as determined by interpolation.

**Note 3:** If the number of unacceptable snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months.



Table 4.6.H-1 (Continued)

SNUBBER VISUAL INSPECTION INTERVAL

- Note 4: If the number of unacceptable snubbers is equal to or less than the number in Column B but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.
- Note 5: If the number of unacceptable snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of unacceptable snubbers is less than the number in Column C, but greater than the number in Column B, the next interval shall be reduced proportionally by interpolation, that is, the previous interval shall be reduced by a factor that is one-third of the ratio of the difference between the number of unacceptable snubbers found during the previous interval and the number in Column B to the difference in the numbers in Columns B and C.
- Note 6: The provisions of Specification 1.0.LL are applicable for all inspection intervals up to and including 48 months.



1 2 3

4 5

6

7

### 3.6/4.6 BASES

#### 3.6.H/4.6.H Snubbers

Snubbers are designed to prevent unrestrained pipe or component motion under dynamic loads as might occur during an earthquake or severe transient, while allowing normal thermal motion during startup and shutdown. The consequence of an inoperable snubber is an increase in the probability of structural damage to piping or components as a result of a seismic or other event initiating dynamic loads. It is therefore required that all snubbers required to protect the primary coolant system or any other safety system or component be operable during reactor operation.

Because the protection is required only during relatively low probability events, a period of 72 hours is allowed to replace or restore the inoperable snubber to operable status and perform an engineering evaluation on the supported component or declare the supported system inoperable and follow the appropriate limiting condition for operation statement for that system. The engineering evaluation is performed to determine whether the mode of failure of the snubber has adversely affected any safety-related component or system.

To verify snubber operability **FUNCTIONAL TESTS** shall be performed during the refueling outages, at approximately 18-month intervals.

These tests will include stroking of the snubbers to verify proper movement, activation, and bleed or release. Ten percent represents an adequate sample for such tests. Observed failures on these samples will require an engineering analysis and testing of additional units. If the engineering analysis results in the determination that the failure of a snubber to activate or to stroke (i.e., seized components) is the result of manufacture or design deficiency, all snubbers subject to the same defect shall be functionally tested. A thorough visual inspection of the snubber threaded attachments to the pipe or components and the anchorage will be made in conjunction with all required **FUNCTIONAL TESTS**. The stroke setting of the snubbers selected for functional testing also will be verified.

All safety-related snubbers are also visually inspected for overall integrity and operability. The inspection will include verification of proper orientation, adequate fluid level if applicable, and proper attachment of the snubber to piping and structures. The removal of insulation or the verification of torque values for threaded fasteners is not required for visual inspections.



### 3.6/4.6 BASES (Continued)

The visual inspection frequency is based upon maintaining a constant level of snubber protection. The number of inoperable snubbers found during a required inspection determines the time interval for the next required inspection. Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. However, the results of such early inspections performed before the original required time interval has elapsed (nominal time less 25 percent) may not be used to lengthen the required inspection interval. Any inspection whose results require a shorter inspection interval will override the previous schedule.

When the cause of the rejection of a snubber in a visual inspection is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible and operability verified by inservice functional testing, if applicable, that snubber may be reclassified as operable. Generically susceptible snubbers are those which are of a specific make or model and have the same design features directly related to rejection of the snubber, or are similarly located or exposed to the same environmental conditions such as temperature, radiation, and vibration. Inspection types may be established based on design features, and installed conditions which may be expected to be generic. Each of these inspection types is inspected and tested separately unless an engineering analysis indicates the inspection type is improperly constituted. All suspect snubbers are subject to inspection and testing regardless of inspection type.