

September 10, 1991

Docket Nos. 50-327
and 50-328

Mr. Dan A. Nauman
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. Nauman:

SUBJECT: ISSUANCE OF AMENDMENTS (TAC NOS. 80501 AND 80502) (TS 91-06)

The Commission has issued the enclosed Amendment No.153 to Facility Operating License No. DPR-77 and Amendment No. 143 to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Units 1 and 2, respectively. These amendments are in response to your application dated May 24, 1991.

These amendments would revise the snubber visual examination requirements to be consistent with the guidance contained in Generic Letter 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions."

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by

David E. LaBarge, Senior Project Manager
Project Directorate II-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No.153 to License No. DPR-77
- 2. Amendment No.143 to License No. DPR-79
- 3. Safety Evaluation

cc w/enclosures:
See next page

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OFC	:PDII-4/LA	PDII-4/PM	OGC	PDII-4/D
NAME	:MSanders	DELabarge	:as	FHebdon
DATE	: 8/22/91	: 8/23/91	: 8/28/91	: 9/10/91

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AMENDMENT NO.153 FOR SEQUOYAH UNIT NO. 1 - DOCKET NO. 50-327 and
AMENDMENT NO.143 FOR SEQUOYAH UNIT NO. 2 - DOCKET NO. 50-328
DATED: September 10, 1991

Docket File

NRC PDR

Local PDR

SQN Reading File

S. Varga	14-E-4
G. Lainas	14-H-3
F. Hebdon	
M. Sanders	
D. E. LaBarge	
B. Wilson	RII
W. Little	RII
OGC	15-B-13
D. Hagan	MNBB-3302
E. Jordan	MNBB-3302
G. Hill	P1-130 (8)
Wanda Jones	MNBB-7103
J. Calvo	14-E-4
H. Shaw	7-E-23
J. Norberg	7-D-2
T. Chan	7-E-23
ACRS(10)	
GPA/PA	2-G-5
OC/LFMB	MNBB-9112

Mr. Dan A. Nauman

cc:

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-327

SEQUOYAH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 153
License No. DPR-77

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Tennessee Valley Authority (the licensee) dated May 24, 1991, 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.

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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-77 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 153, 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.

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: September 10, 1991

ATTACHMENT TO LICENSE AMENDMENT NO.153

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

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

3/4 7-21

3/4 7-21

-

3/4 7-21a

-

3/4 7-21b

3/4 7-22

3/4 7-22

3/4 7-23

3/4 7-23

B3/4 7-6

B3/4 7-6

PLANT SYSTEMS

3/4.7.9 SNUBBERS

LIMITING CONDITION FOR OPERATION

3.7.9. All safety-related snubbers shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4. (MODES 5 and 6 for snubbers located on systems or partial systems required OPERABLE in those MODES.)

ACTION:

With one or more snubbers inoperable, 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 ACTION statement for that system.

SURVEILLANCE REQUIREMENTS

4.7.9. Each safety-related snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program and the requirements of Specification 4.0.5.

a. Inspection Groups

The snubbers may be categorized into two major groups based on whether the snubbers are accessible or inaccessible during reactor operation. These major groups may be further subdivided into subgroups based on design, environment, or other features which may be expected to affect the OPERABILITY of the snubbers within the subgroup. Each subgroup may be tested independently in accordance with 4.7.9.d through 4.7.9.h.

b. Visual Inspection Schedule and Lot Size

All of the safety-related snubbers shall be included in one population or they shall be categorized as accessible or inaccessible for visual inspection. If used, the accessible or inaccessible categories shall be considered separately for visual inspections.

When recombining categories into one population, the shorter interval of the categories shall be used.

The visual inspection interval for the population or each category shall be determined based upon the criteria provided in Table 4.7.9-1. 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 the amendment which incorporated this change was issued by the NRC.

Table 4.7.9-1
 SNUBBER VISUAL INSPECTION INTERVAL

Population or Category (Notes 1 and 2)	NUMBER OF UNACCEPTABLE SNUBBERS		
	Column A Extended 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 greater	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 size 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 described 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 4.7.9-1 (continued)
SNUBBER VISUAL INSPECTION INTERVAL

- Note 4: If the number 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 Column B and C.
- Note 6: The provisions of Specification 4.0.2 are applicable for all inspection intervals up to and including 48 months.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

c. Visual Inspection Performance and Evaluation

Visual inspections shall verify (1) that there are no visible indications of damage or impaired OPERABILITY, (2) bolts attaching the snubber to the foundation or supporting structure are secure, and (3) 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 appear inoperable as a result of visual inspections may be determined OPERABLE for the purpose of establishing the next visual inspection interval, providing that (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers that may be generically susceptible; and (2) the affected snubber is functionally tested, if applicable, in the as-found condition and determined OPERABLE per Specification 4.7.9.e. Hydraulic snubbers with inoperable single or common fluid reservoirs which have uncovered fluid ports shall be declared inoperable. When hydraulic snubbers which have uncovered fluid ports are tested, the tests shall be performed by starting with the piston at the as-found setting and extending the piston rod in the extension mode direction.

Also, snubbers which have been made inoperable as the result of unexpected transients, isolated damage or other such random events, when the provisions of 4.7.9.g and 4.7.9.h have been met and any other appropriate corrective action implemented, shall not be counted in determining the next visual inspection interval.

d. Functional Test Schedule, Lot Size, and Composition

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

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

d. Functional Test Schedule, Lot Size, and Composition (Continued)

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 groups or subgroups. The representative sample should be weighted to include more snubbers from severe service areas such as near heavy equipment. Unless a failure analysis as required by 4.7.9.f indicates otherwise, the sample shall be a composite based on the ratio of each group to the total number of snubbers installed in the plant. Snubbers placed in the same location as snubbers which failed the previous functional test shall be included in the next test lot if the failure analysis shows that failure was due to location.

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.

e. Functional Test Acceptance Criteria

The snubber functional test shall verify that:

1. Activation (restraining action) is achieved within the specified range in both tension and compression, except that inertia dependent, acceleration limiting mechanical snubbers, may be tested to verify only that activation takes place in both directions of travel.
2. Snubber bleed, or release where required, is present in both tension and compression, within the specified range.
3. The force required to initiate or maintain motion of the snubber is within the specified range in both directions of travel.
4. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.
5. 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.

f. Functional Test Failure Analysis and Additional Test Lots

If any snubber selected for functional testing either fails to lock up or fails to move due to manufacture or design deficiency, all snubbers of the same design subject to the same defect shall be functionally tested.

PLANT SYSTEMS

BASES

SNUBBERS (Continued)

that may be generically susceptible and operability verified by inservice functional testing, if applicable, that snubber may be exempted from being counted as inoperable. 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. Test groups may be established based on design features and installed conditions which may be expected to be generic. Each of these groups are tested separately unless an engineering analysis indicates the group is improperly constituted. All suspect snubbers are subject to inspection and testing regardless of test groupings.

To further increase the assurance of snubber reliability, functional tests shall be performed during each refueling outage. These tests will include stroking of the snubbers to verify proper movement, activation, and bleed or release. The performance of hydraulic snubbers generally depends on a clean, deaerated fluid contained within variable pressure chambers, flowing at closely controlled rates. Since these characteristics are subject to change with exposure to the reactor environment, time, and other factors, their performance within the specified range should be verified. Mechanical snubbers which depend upon overcoming the inertia of a mass and the braking action of a capstan spring contained within the snubber for limiting the acceleration of the attached component (within the load rating of the snubber) are not subject to changes in performance in the same manner as hydraulic snubbers. Pending the development of information regarding the change during the service of the snubber of the acceleration/resistance relationship and the optimum method for detecting this change, these mechanical snubbers may be tested to verify that when subjected to a large change in velocity the resistance to movement increases greatly. The performance change information was developed in order to establish test methods to be used during and after the first refueling outage.

Ten percent of the total population of snubbers is an adequate sample for functional tests. The initial sample is to be proportioned among the groups in order to obtain a representative sample. Observed failures of more than two snubbers in the initial lot will require an engineering analysis and testing of additional snubbers selected from snubbers likely to have the same defect. A thorough inspection of the snubber threaded attachments to the pipe or components and the anchorage will be made in conjunction with all required functional tests.

A list of individual snubbers with detailed information of snubber location and size shall be available at the plant in accordance with Section 50.71(c) of 10 CFR Part 50. The accessibility of each snubber shall be determined based upon the existing radiation levels and the expected time to perform a visual inspection in each snubber location as well as other factors associated with accessibility during plant operations (e.g., temperature, atmosphere,



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

TENNESSEE VALLEY AUTHORITY
DOCKET NO. 50-328
SEQUOYAH NUCLEAR PLANT, UNIT 2
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 143
License No. DPR-79

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Tennessee Valley Authority (the licensee) dated May 24, 1991, 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-79 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 143, 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.

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: September 10, 1991

ATTACHMENT TO LICENSE AMENDMENT NO.143

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

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.

<u>REMOVE</u>	<u>INSERT</u>
3/4 7-21	3/4 7-21
-	3/4 7-21a
-	3/4 7-21b
3/4 7-22	3/4 7-22
3/4 7-23	3/4 7-23
3/4 7-24	3/4 7-24
*B3/4 7-5	*B3/4 7-5
B3/4 7-6	B3/4 7-6
B3/4 7-6a	B3/4 7-6a

PLANT SYSTEMS

3/4.7.9 SNUBBERS

LIMITING CONDITION FOR OPERATION

3.7.9 All safety-related snubbers shall be OPERABLE.

APPLICABILITY: Modes 1, 2, 3 and 4. (MODES 5 and 6 for snubbers located on systems or partial systems required OPERABLE in those MODES.)

ACTION:

With one or more snubbers inoperable, 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 ACTION statement for that system.

SURVEILLANCE REQUIREMENTS

4.7.9 Each safety-related snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program and the requirements of Specification 4.0.5.

a. Inspection Groups

The snubbers may be categorized into two major groups based on whether the snubbers are accessible or inaccessible during reactor operation. These major groups may be further subdivided into subgroups based on design, environment, or other features which may be expected to affect the OPERABILITY of the snubbers within the subgroup. Each subgroup may be tested independently in accordance with 4.7.9.d through 4.7.9.h.

b. Visual Inspection Schedule

All of the safety-related snubbers shall be included in one population or they shall be categorized as accessible or inaccessible for visual inspection. If used, the accessible or inaccessible categories shall be considered separately for visual inspections.

When recombining categories into one population, the shorter interval of the categories shall be used.

The visual inspection interval for the population or each category shall be determined based upon the criteria provided in Table 4.7.9-1, 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 the amendment which incorporated this change was issued by the NRC.

Table 4.7.9-1
 SNUBBER VISUAL INSPECTION INTERVAL

Population or Category (Notes 1 and 2)	NUMBER OF UNACCEPTABLE SNUBBERS		
	Column A Extended 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 greater	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 size 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 described 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 4.7.9-1 (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 Column B and C.
- Note 6: The provisions of Specification 4.0.2 are applicable for all inspection intervals up to and including 48 months.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

c. Visual Inspection Performance and Evaluation

Visual inspections shall verify (1) that there are no visible indications of damage or impaired OPERABILITY, (2) bolts attaching the snubber to the foundation or supporting structure are secure, and (3) 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 appear inoperable as a result of visual inspections may be determined OPERABLE for the purpose of establishing the next visual inspection interval, providing that (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers that may be generically susceptible; and (2) the affected snubber is functionally tested, if applicable, in the as-found condition and determined OPERABLE per Specification 4.7.9.e. Hydraulic snubbers with inoperable single or common fluid reservoirs which have uncovered fluid ports shall be declared inoperable. When hydraulic snubbers which have uncovered fluid ports are tested, the tests shall be performed by starting with the piston at the as-found setting and extending the piston rod in the extension mode direction.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

c. Visual Inspection Performance and Evaluation (Cont'd)

Also, snubbers which have been made inoperable as the result of unexpected transients, isolated damage or other such random events, when the provisions of 4.7.9.g and 4.7.9.h have been met and any other appropriate corrective action implemented, shall not be counted in determining the next visual inspection interval.

d. Functional Test Schedule, Lot Size, and Composition

During each refueling outage, a representative sample of 10% of the total of the 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 groups or subgroups. The representative sample should be weighted to include more snubbers from severe service areas such as near heavy equipment. Unless a failure analysis as required by 4.7.9.f indicates otherwise, the sample shall be a composite based on the ratio of each group to the total number of snubbers installed in the plant. Snubbers placed in the same location as snubbers which failed the previous functional test shall be included in the next test lot if the failure analysis shows that failure was due to location.

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.

e. Functional Test Acceptance Criteria

The snubber functional test shall verify that:

1. Activation (restraining action) is achieved within the specified range in both tension and compression, except that inertia dependent, acceleration limiting mechanical snubbers, may be tested to verify only that activation takes place in both directions of travel.
2. Snubber bleed, or release where required, is present in both tension and compression, within the specified range.
3. The force required to initiate or maintain motion of the snubber is within the specified range in both directions of travel.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

e. Functional Test Acceptance Criteria (Cont'd)

4. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.
5. 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.

f. Functional Test Failure Analysis and Additional Test Lots

If any snubber selected for functional testing either fails to lock up or fails to move due to manufacture or design deficiency, all snubbers of the same design subject to the same defect shall be functionally tested.

If more than two snubbers do not meet the functional test acceptance criteria, an additional lot equal to one-half the original lot size shall be functionally tested for each failed snubber in excess of the two allowed failures. 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.) Testing shall continue until not more than one additional inoperable snubber is found within a subsequent required lot, or all snubbers of the original inspection group have been tested, or all suspect snubbers identified by the failure analysis have been tested, as applicable.

The discovery of loose or missing attachment fasteners will be evaluated to determine whether the cause may be localized or generic. The result of the evaluation will be used to select other suspect snubbers for verifying the attachment fasteners, as applicable.

Snubbers shall not be subjected to prior maintenance specifically for the purpose of meeting functional test requirements.

PLANT SYSTEMS

BASES

3/4.7.8 AUXILIARY BUILDING GAS TREATMENT SYSTEM

The OPERABILITY of the auxiliary building gas treatment system ensures that radioactive materials leaking from the ECCS equipment following a LOCA are filtered prior to reaching the environment. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the accident analyses. ANSI N510-1975 will be used as a procedural guide for surveillance testing. Cumulative operation of the system with the heaters on for 10 hours over a 31 day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters.

3/4.7.9 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 snubber protection is required only during relatively low probability events, a period of 72 hours is allowed to replace or restore the inoperable snubber(s) 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.

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

The inspection frequency is based upon maintaining a constant level of snubber protection. Thus, the required inspection interval varies inversely with the observed snubber failures. 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.

PLANT SYSTEMS

BASES

3/4.7.9 SNUBBERS (cont'd)

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 exempted from being counted as inoperable. 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. Test groups may be established based on design features and installed conditions which may be expected to be generic. Each of these groups are tested separately unless an engineering analysis indicates the group is improperly constituted. All suspect snubbers are subject to inspection and testing regardless of test groupings.

To further increase the assurance of snubber reliability, functional tests shall be performed during each refueling outage. These tests will include stroking of the snubbers to verify proper movement, activation, and bleed or release. The performance of hydraulic snubbers generally depends on a clean, deaerated fluid contained within variable pressure chambers, flowing at closely controlled rates. Since these characteristics are subject to change with exposure to the reactor environment, time, and other factors, their performance within the specified range should be verified. Mechanical snubbers which depend upon overcoming the inertia of a mass and the braking action of a capstan spring contained within the snubber for limiting the acceleration of the attached component (within the load rating of the snubber) are not subject to changes in performance in the same manner as hydraulic snubbers. Pending the development of information regarding the change during the service of the snubber of the acceleration/resistance relationship and the optimum method for detecting this change, these mechanical snubbers may be tested to verify that when subjected to a large change in velocity the resistance to movement increases greatly. The performance change information was developed in order to establish test methods to be used during and after the first refueling outage.

Ten percent of the total population of snubbers is an adequate sample for functional tests. The initial sample is to be proportioned among the groups in order to obtain a representative sample. Observed failures of more than two snubbers in the initial lot will require an engineering analysis and testing of additional snubbers selected from snubbers likely to have the same defect. A thorough inspection of the snubber threaded attachments to the pipe or components and the anchorage will be made in conjunction with all required functional tests.

BASES

3/4.7.9 SNUBBERS (cont'd)

A list of individual snubbers with detailed information of snubber location and size shall be available at the plant in accordance with Section 50.71(c) of 10 CFR Part 50. The accessibility of each snubber shall be determined based upon the existing radiation levels and the expected time to perform a visual inspection in each snubber location as well as other factors associated with accessibility during plant operations (e.g., temperature, atmosphere, location etc.), and the recommendations of Regulatory Guide 8.8 and 8.10. The addition or deletion of any hydraulic or mechanical snubber shall be made in accordance with Section 50.59 of 10 CFR Part 50.

3/4.7.10 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values. Sealed sources are classified into three groups according to their use, with surveillance requirements commensurate with the probability of damage to a source in that group. Those sources which are frequently handled are required to be tested more often than those which are not. Sealed sources which are continuously enclosed within a shielded mechanism (i.e., sealed sources within radiation monitoring or boron measuring devices) are considered to be stored and need not be tested unless they are removed from the shielded mechanism.



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

ENCLOSURE 3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 153 TO FACILITY OPERATING LICENSE NO. DPR-77
AND AMENDMENT NO. 143 TO FACILITY OPERATING LICENSE NO. DPR-79

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2
DOCKET NOS. 50-327 AND 50-328

1.0 INTRODUCTION

By letter dated May 24, 1991, the Tennessee Valley Authority (the licensee) submitted a request for changes to the Sequoyah Nuclear Plant, Units 1 and 2 Technical Specifications (TS). The requested changes would permit the licensee to revise its TS-required visual examination programs for safety-related snubbers in accordance with the guidelines set forth in Generic Letter 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Action," of December 11, 1990.

2.0 EVALUATION

The present snubber visual examination schedule in the TS is based on the number of inoperable snubbers identified in the previous visual examination. The schedule is determined only by an absolute number of inoperable snubbers discovered during the previous visual examination irrespective of the size of the snubber population. Therefore, licensees with a large snubber population find the schedule excessively restrictive.

Generic Letter 90-09 provides an acceptable alternative visual examination schedule that permits licensees to perform visual examinations and corrective actions during refueling outages without reducing the confidence level provided by the existing surveillance requirements. The basic examination interval is the normal fuel cycle up to 24 months. This interval may be extended to as long as twice the fuel cycle or reduced to as small as two-thirds of the fuel cycle depending on the number of unacceptable snubbers found during the visual examination. The examination interval may vary by +25 percent to coincide with the actual outage.

If one or more snubbers are found inoperable during a visual examination, the present TS Limiting Conditions for Operation (LCO) require the licensee to restore or replace the inoperable snubber(s) to operable status within 72 hours, or declare the attached system inoperable and follow the appropriate action statement for that system. This LCO will remain in the TS. However, this proposed amendment would allow the permissible number of inoperable snubber(s), and the subsequent visual examination interval, to be determined

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using the new visual examination schedule (proposed Table 4.7.9.1). As noted in the guidance of Generic Letter 90-09 for this line item TS improvement, certain corrective actions may have to be performed depending on the number of inoperable snubbers found. All requirements for corrective actions and evaluations associated with the use of the visual examination schedule, as stated in Footnotes 1 through 7 (Table 1 of Generic Letter 90-09), is proposed to be included in the TS. Therefore, we find these proposed changes acceptable.

The licensee also proposed to delete the 50 percent drag force increment as an acceptance limit for functional testing. This requirement was established to trend the mechanical snubber's performance, not to determine operability. In the past, the recommended limit for the change in mechanical snubber drag force was 0.5 percent of the snubber's rated load, and the 50 percent increment of drag force between two consecutive tests was believed to be the maximum deterioration rate that can be tolerated by mechanical snubbers. However, the manufacturer has periodically revised its recommended drag acceptance value. The latest recommended cumulative limit is 3 percent of the snubber's rated load with no restriction on deterioration rate instead of the originally recommended 0.5 percent coupled with the 50 percent drag force increment. In addition, monitoring to determine if a deteriorating trend is developing between surveillance inspections is required by Surveillance Requirement 4.7.9.i. This specification requires the determination of the maximum service life using engineering information. Also, it specifies that an increase in the drag force greater than 50 percent from the previous test is an indication of impending failures of the snubber which shall be evaluated. As a result, the use of 50 percent as the deterioration rate limit required by the TS is not appropriate. Therefore, deletion of the 50 percent change as a limit for the drag force is acceptable.

The requested revision of the bases for the TS is related to the licensee's internal approval procedure of adding and deleting snubbers to the service list, and revises the number of snubbers to reflect the present population level. We find these changes to be acceptable.

In summary, the licensee has proposed changes to TS 3/4.7.9 that are consistent with the guidance provided in Generic Letter 90-09 for the replacement of the snubber visual examination schedule with Table 1 (including Footnotes 1 through 7) of Generic Letter 90-09. The staff has reviewed the proposed amendments and finds that the proposed changes are acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Tennessee State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no