

ENCLOSURE
SEQUOYAH NUCLEAR PLANT
PROPOSED TECHNICAL SPECIFICATION

PLANT SYSTEMS

3/4.7.9 SNUBBERS

LIMITING CONDITION FOR OPERATION

3.7.9 All safety-related snubbers shall be OPERABLE. The snubbers are shown in Tables 3.7-4a and 3.7-4b and are listed in Surveillance Instruction SNP SI-162. Any exemptions to the surveillance program are shown in Table 3.7-4c and in SNP SI-162.

APPLICABILITY: Modes 1, 2, 3, and 4. (Modes 5 and 6 for snubbers located on systems or partial systems required OPERABLE in these 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. These snubbers are shown in Tables 3.7-4a and 3.7-4b and are listed in Surveillance Instruction SNP SI-162. Table 3.7-4b is a detailed tabulation of the hydraulic snubbers which are also shown in Table 3.7-4a. Any exemption to any portion of the surveillance program for any snubber is shown in Table 3.7-4c

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 or group may be inspected independently in accordance with 4.7.9.b through 4.7.9.h.

b. Visual Inspection Schedule and Lot Size

The first inservice visual inspection of snubbers shall be completed by October 31, 1981, and shall include all snubbers on safety-related systems. If less than two (2) snubbers are found

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SURVEILLANCE REQUIREMENTS (Continued)

b. Visual Inspection Schedule and Lot Size (Cont'd)

inoperable during the first inservice visual inspection, the second inservice visual inspection shall be performed 12 months \pm 25% from the date of the first inspection. Otherwise, subsequent visual inspections shall be performed in accordance with the following schedule:

<u>Number of Inoperable Snubbers per Inspection Period</u>	<u>Subsequent Visual Inspection Period * #</u>
0	18 months \pm 25%
1	12 months \pm 25%
2	6 months \pm 25%
3, 4	124 days \pm 25%
5, 6, 7	62 days \pm 25%
8 or more	31 days \pm 25%

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.

* The inspection interval shall not be lengthened more than one step at a time.

The provisions of Specification 4.0.2 are not applicable.

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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.

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SURVEILLANCE REQUIREMENTS (Continued)

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. Also, the increase in the force required shall not exceed 50 percent of the amount required at the last surveillance test of that snubber, provided that the force required is at least 25 pounds.
 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

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SURVEILLANCE REQUIREMENTS (Continued)

f. Functional Test Failure Analysis and Additional Test Lots (Cont'd)

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.

g. Functional Test Failure - Attached Component Analysis

For snubber(s) found inoperable, an engineering evaluation shall be performed on the components which are restrained by the snubber(s). The purpose of this engineering evaluation shall be to determine if the components restrained by the snubber(s) were adversely affected by the inoperability of the snubbers(s), and in order to ensure that the restrained component remains capable of meeting the designed service.

h. Functional Testing of Repaired and Spare Snubbers

Snubbers which fail the visual inspection or the functional test acceptance criteria shall be repaired or replaced. Replacement snubbers and snubbers which have repairs which might affect the functional test results shall be tested to meet the functional test criteria before installation in the unit. These snubbers shall have met the acceptance criteria subsequent to their most recent service, and the functional test must have been performed within 12 months before being installed in the unit.

i. Snubber Service Life Program

The seal service life of hydraulic snubbers shall be monitored to ensure that the seals do not fail between surveillance inspections. The maximum expected service life for the various seals, seal materials, and applications shall be estimated based on engineering information, and the seals shall be replaced so that the maximum expected service life does not expire during a period when the snubber is required to be operable. The seal replacements shall be documented and the documentation shall be retained in accordance with 6.10.2.n.

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SURVEILLANCE REQUIREMENTS (Continued)

i. Snubber Service Life Program (Cont'd)

Mechanical snubber drag force increases greater than 50 percent of previously measured values shall be evaluated as an indication of impending failure of the snubber. These evaluations and any associated corrective action shall be documented and the documentation shall be retained in accordance with 6.10.2.n.

j. Exemption From Visual Inspection or Functional Tests

Permanent or other exemptions from the surveillance program for individual snubbers may be granted by the Commission if a justifiable basis for exemption is presented and if applicable snubber life destructive testing was performed to qualify snubber operability for the applicable design conditions at either the completion of their fabrication or at a subsequent date. Snubbers so exempted shall be listed in Table 3.7-4c and shall continue to be listed in the plant instruction SNP SI-162 indicating the extent of the exemptions.

Table 3.7-4a
Safety Related Snubbers *

System	ACCESSIBLE								INACCESSIBLE									
	Small PSA		Medium & Large PSA					Hyd.	Small PSA		Medium & Large PSA					Paul Munroe	Hyd.	
	1/4	1/2	1	3	10	35	100		1/4	1/2	1	3	10	35	100			
MS	22	9		3	9	9	7	12			1						20	16
AMS	1	2						3										
AFD	4	1	1	4				5	1	2		2						2
FD					2			6	1		1		2					1
CC			8	10	8			10	21	5	4	2						4
SI		3			1			2	37	12	2	9	15	1				4
CS				3	4	2		3				1	15	1				
CVC	7	5		1				4	24	7	3	8	1					
RC									15	16	29	40	19	8				
UHI									1	4	7	20	24	5				1
SGB	1		1						1	7	8	5						
FPC			2	4								3	1					
ERCW	2		5		4				22	19	23	15						
RHR	5	2	2	6	2			2			1							3
IC									8	6	5							
WD									9									
DW	1								1		1							
SA									1	1	1							
PW	1	2									1	1						
AC&H									12	7								
Sub Total	44	24	19	31	30	11	7		154	86	87	106	77	15				
Totals		68						98	47		240			285		20	31	

*Snubbers may be added to safety related systems without prior License Amendment to Table 3.7-4a provided that a revision to Table 3.7-4a is included with the next License Amendment request. Any exemptions to the provisions of the surveillance program for any snubber is indicated in Table 3.7-4c.

Table 3.7-4b
Safety Related Hydraulic Snubbers*

		ACCESSIBLE										INACCESSIBLE												
System		Size	1	1½	2	2½	3¼	4	5	6	8	Sub Total	Size	1	1½	2	2½	3¼	4	5	6	8	Sub Total	
	MS				1	5	5	1				12	MS						8			8	16	
	AMS		3									3	AMS										0	
	AFD	2	3									5	AFD	2									2	
	FD					3	2			1		6	FD				1						1	
	CC		1	2	3	3	1					10	CC	2	2								4	
	SI		1				1					2	SI			1		2	1				4	
	CS		1				1	1				3	CS										0	
	CVC		4									4	CVC										0	
	RC											0	RC										0	
	UHI											0	UHI				1						1	
	SGB											0	SGB										0	
	FPC											0	FPC										0	
	RHR		2									2	RHR			2	1						3	
	IC											0	IC										0	
	WD											0	WD										0	
	DW											0	DW										0	
	SA											0	SA										0	
	PW											0	PW										0	
	AC&H											0	AC&H										0	
	ERCW											0	ERCW										0	
																							0	
												Total											Total	31
												47												47

*Snubbers may be added to safety related systems without prior License Amendment to Table 3.7-4a provided that a revision to Table 3.7-4a is included with the next License Amendment request. Any exemptions to the provisions of the surveillance program for any snubber is indicated in Table 3.7-4c.

Table 3.7-4c
Safety Related Snubbers - Exemptions to
the Surveillance Program

Pages 3/4 7-31 through 3/4 7-36a deleted

SEQUOYAH - UNIT 1

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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. 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. ANSI N510-1975 will be used as a procedural guide for surveillance testing.

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.

All 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.

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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. Inspection groups may be established based on design features and installed conditions which may be expected to be generic. Each of these inspection groups are inspected and tested separately unless an engineering analysis indicates the inspection group is improperly constituted. All suspect snubbers are subject to inspection and testing regardless of inspection 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 is to be developed in order to establish test methods to be used during and after the first refueling outage.

Ten percent of the total population of approximately 700 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.

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.

ADMINISTRATIVE CONTROLS

6.10.2 The following records shall be retained for the duration of the Unit Operating License:

- a. Records and drawing changes reflecting unit design modifications made to systems and equipment described in the Final Safety Analysis Report.
- b. Records of new and irradiated fuel inventory, fuel transfers and assembly burnup histories.
- c. Records of radiation exposure for all individuals entering radiation control areas.
- d. Records of gaseous and liquid radioactive material released to the environs.
- e. Records of transient or operational cycles for those unit components identified in Table 5.7-1.
- f. Records of reactor tests and experiments.
- g. Records of training and qualification for current members of the unit staff.
- h. Records of in-service inspections performed pursuant to these Technical Specifications.
- i. Records of Quality Assurance activities required by the Operational Quality Assurance Manual.
- j. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59.
- k. Records of meetings of the PORC, BARC, and the NSRB.
- l. Records of analyses required by the radiological environmental monitoring program.
- m. Records of secondary water sampling and water quality.
- n. Records of service life monitoring of all snubbers listed in SI-162 and in Tables 3.7-4a and 3.7-4b including the maintenance performed to renew service life of the snubbers.
- o. Records for Environmental Qualification which are covered under the provisions of Paragraph 7.C.(12)(b) of License No. DPR-77.

6.11 RADIATION PROTECTION PROGRAM

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.