

PRIORITY Normal

DISPOSITION OF THE ORIGINAL DOCUMENT WILL BE TO  
THE TRANSMITTAL SIGNATURE UNLESS RECIPIENT IS  
OTHERWISE IDENTIFIED BELOW

- 1) 02467 ELECT. LICENSING LIBRARY EC050
- 2) 02532 MCG NRC INSP MG-ADMIN MAIL RM
- 3) 02546 WC LIBRARY - MG01WC
- 4) 03044 MCG DOC CNTRL MISC MAN MG05DM
- 5) 03379 D E CALDWELL MG01MM
- 6) 03447 HARRY J SLOAN MG01RP
- 7) 03614 MCG OPS PROCEDURE GP MG01OP
- 8) 03744 OPS TRNG MGR. MG03OT
- 9) 03759 U S NUC REG WASHINGTON. DC
- 10) 04809 MCG PLANT ENG. LIBR. MG05SE
- 11) 05162 MCG SHIFT WORK MGRS MG01OP
- 12) 09460 W C SPENCER MG01RP
- 13) 09665 JOHN F. STANG. USNRC

## Duke Energy DOCUMENT TRANSMITTAL FORM

### REFERENCE

MCGUIRE NUCLEAR STATION  
RECORD RETENTION # 005893

SELECTED LICENSEE COMMITMENTS  
MANUAL (SLC)

Page 2 of 2

Date: 08/09/07

Document Transmittal #: DUK072210004

QA CONDITION

☐ Yes ☒ No

OTHER ACKNOWLEDGEMENT REQUIRED ☒ Yes

IF QA OR OTHER ACKNOWLEDGEMENT REQUIRED, PLEASE  
ACKNOWLEDGE RECEIPT BY RETURNING THIS FORM TO:

Duke Energy  
McGuire  
DCRM MGO2DM  
13225 Hagers Ferry Road  
Huntersville, N.C. 28078

Rec'd By \_\_\_\_\_

Date \_\_\_\_\_

DOCUMENT NO	QA COND	REV #/ DATE	DISTR CODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL
SLC - LIST OF EFFECTIVE PAGES	NA	081 08/02/07	MADM-03A	V1	V1	V1	X	V1	V1	V1	V2	V8	V2	V1	V1	V1			38
SLC 16.9.15	NA	95 08/02/07																	

REMARKS: PLEASE UPDATE ACCORDINGLY

RECIPIENT # 00422 PREVIOUSLY COMPLETED

G R PETERSON  
VICE PRESIDENT  
MCGUIRE NUCLEAR STATION

BY:

B C BEAVER MG01RC BCB/CMK

*AOB3  
NER*

August 2, 2007

MEMORANDUM

To: All McGuire Nuclear Station Selected Licensee Commitments (SLC) Manual Holders

Subject: McGuire SLC Manual Update

Please revise your copy of the manual as follows:

REMOVE

INSERT

List of Effective Sections (Rev 80)

List of Effective Sections (Rev 81)

SLC 16.9.15 (entire section) (Rev 68)

SLC 16.9.15 (entire section) (Rev 95)

**Revisions may skip numbers due to Regulatory Compliance Filing System.**

Please call me if you have questions.

*Bonnie Beaver*

Bonnie Beaver  
Regulatory Compliance

# SELECTED LICENSEE COMMITMENTS (SLC)

## LOES

*SLCs ARE REVISED PER SECTION*

SECTION	REVISION NUMBER	DATE
16.1	REVISION 32	12/2/02
16.2	REVISION 90	3/13/07
16.3	REVISION 48	7/31/03
16.4	Not Issued	
16.5.1	REVISION 82	6/12/06
16.5.2	REVISION 0	12/14/99
16.5.3	REVISION 0	12/14/99
16.5.4	REVISION 55	3/23/04
16.5.5	REVISION 0	12/14/99
16.5.6	REVISION 0	12/14/99
16.5.7	REVISION 53	1/13/04
16.5.8	REVISION 0	12/14/99
16.5.9	REVISION 0	12/14/99
16.5.10	REVISION 38	4/9/03
16.6.1	REVISION 0	12/14/99
16.6.2	DELETED	6/11/03
16.6.3	REVISION 61	04/07/05
16.6.4	REVISION 27	06/12/02
16.7.1	REVISION 0	12/14/99
16.7.2	REVISION 80	10/1/05
16.7.3	REVISION 0	12/14/99
16.7.4	REVISION 1	4/11/00
16.7.5	REVISION 0	12/14/99
16.7.6	REVISION 94	6/25/07
16.7.7	REVISION 0	12/14/99
16.7.8	REVISION 77	10/12/05
16.7.9	REVISION 0	12/14/99
16.7.10	REVISION 0	12/14/99
16.7.11	REVISION 71	05/25/05
16.8.1	REVISION 93	4/30/07
16.8.2	REVISION 0	12/14/99
16.8.3	REVISION 65	12/21/04
16.9.1	REVISION 53	1/13/04
16.9.2	REVISION 81	6/15/06
16.9.3	REVISION 81	6/15/06
16.9.4	REVISION 83	7/12/06
16.9.5	REVISION 81	6/15/06
16.9.6	REVISION 92	4/4/07
16.9.7	REVISION 89	6/15/07
16.9.8	REVISION 76	7/25/05
16.9.9	REVISION 34	2/26/03
16.9.10	REVISION 13	2/26/01
16.9.11	REVISION 22	2/25/02
16.9.12	REVISION 34	2/26/03

# SELECTED LICENSEE COMMITMENTS (SLC)

## LOES

*SLCs ARE REVISED PER SECTION*

SECTION	REVISION NUMBER	DATE
16.9.13	Not Used - Rev 13	2/26/01
16.9.14	REVISION 22	2/25/02
16.9.15	REVISION 95	7/9/07
16.9.16	REVISION 65	12/21/04
16.9.17	REVISION 86	1/17/07
16.9.18	REVISION 0	12/14/99
16.9.19	REVISION 48	7/31/03
16.9.20	REVISION 8	11/30/00
16.9.21	REVISION 0	12/14/99
16.9.22	REVISION 29	7/10/02
16.9.23	REVISION 88	1/17/07
16.9.24	Not Used – Rev 74	6/20/05
16.9.25	REVISION 87	1/17/07
16.10.1	REVISION 56	4/6/04
16.11.1	REVISION 9	2/1/01
16.11.2	REVISION 84	7/19/06
16.11.3	REVISION 0	12/14/99
16.11.4	REVISION 0	12/14/99
16.11.5	REVISION 0	12/14/99
16.11.6	REVISION 59	6/1/04
16.11.7	REVISION 84	7/19/06
16.11.8	REVISION 0	12/14/99
16.11.9	REVISION 0	12/14/99
16.11.10	REVISION 0	12/14/99
16.11.11	REVISION 41	8/21/03
16.11.12	REVISION 67	2/28/05
16.11.13	REVISION 91	3/22/07
16.11.14	REVISION 21	1/17/02
16.11.15	REVISION 21	1/17/02
16.11.16	REVISION 1	4/11/00
16.11.17	REVISION 1	4/11/00
16.11.18	REVISION 0	12/14/99
16.11.19	REVISION 0	12/14/99
16.11.20	REVISION 0	12/14/99
16.12.1	REVISION 0	12/14/99
16.12.2	REVISION 0	12/14/99
16.13.1	REVISION 51	10/1/03
16.13.2	Not Used – Rev 75	8/05
16.13.3	Not Used – Rev 75	8/05
16.13.4	REVISION 58	5/11/04
16.14.1	REVISION 0	12/14/99

## 16.9 AUXILIARY SYSTEMS

### 16.9.15 Snubbers

COMMITMENT All snubbers shall be OPERABLE.

-----NOTE-----  
Snubbers installed on non-safety systems may be excluded from these requirements provided their failure or the failure of the system on which they are installed would not have an adverse affect on any safety-related system.  
-----

APPLICABILITY At all times for snubbers located on systems required OPERABLE.

#### REMEDIAL ACTIONS

-----NOTE-----  
Conditions A, B, and C are applicable to "seismic snubbers" as defined in the BASES.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more seismic snubbers associated with one train of a multiple train system inoperable for maintenance or testing.</p> <p><u>OR</u></p> <p>One or more seismic snubbers associated with a single train system inoperable for maintenance or testing.</p>	<p>A.1.1 Verify that at least one train of AFW (Auxiliary Feedwater) not associated with the inoperable snubber(s) is OPERABLE.</p> <p><u>AND</u></p>	Immediately
	<p>A.1.2 Verify the opposite train of the associated system is operable, if a multiple train system.</p> <p><u>AND</u></p>	Immediately
	<p>A.1.3 Log the affected system(s) for tracking in TSAIL.</p> <p><u>AND</u></p>	Immediately
(continued)		

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.1.4 Enter the applicable ACTIONS for the train or component associated with the inoperable snubber(s).</p> <p><u>OR</u></p> <p>A.2 Declare the supported system inoperable.</p>	<p>72 hours</p> <p>Immediately</p>
<p>B. One or more seismic snubbers associated with more than one train of a multiple train system inoperable for maintenance or testing.</p>	<p>B.1.1 Verify that at least one train of AFW not associated with the inoperable snubber(s) is OPERABLE.</p> <p><u>AND</u></p> <p>B.1.2 Enter the applicable ACTIONS for the train or component associated with the inoperable snubber.</p> <p><u>OR</u></p> <p>B.2 Declare the supported system inoperable.</p>	<p>Immediately</p> <p>12 hours</p> <p>Immediately</p>

(continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more seismic snubbers associated with one train of a multiple train system inoperable for maintenance or testing.  <u>AND</u>  The opposite train of the associated system is inoperable for reasons not related to snubbers.	C.1.1 Verify that at least one train of AFW not associated with the inoperable snubber(s) is OPERABLE.  <u>AND</u>	Immediately
	C.1.2 -----Note----- If the reason for the inoperability of either the snubber or the opposite train of the associated system is due to planned work, the risk assessment must be completed prior to starting work.  -----  Initiate a qualitative risk assessment of the resulting configuration.  <u>AND</u>	Immediately
	C.1.3 Enter the applicable ACTION for the train or component associated with the inoperable snubber.  <u>OR</u>	72 hours
	C.2 Declare the supported system inoperable	Immediately
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Enter the applicable ACTIONS for the train or component associated with the inoperable snubber.	Immediately

(continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more snubbers with any significant non-seismic loads inoperable for maintenance or testing.	E.1 Enter the applicable ACTIONS for any affected system(s) and component(s) that are determined to be inoperable.	Immediately
	<u>OR</u> E.2 Perform an engineering evaluation to determine the effect of the inoperable snubber on the operability of the associated system.	Prior to removing the snubber from service.
F. One or more snubbers inoperable due to actual failure of the snubber or failure to meet test acceptance criteria.	F.1 Perform an engineering evaluation to determine the effect of the inoperable snubber on the operability of the associated system.	72 hours



## TESTING REQUIREMENTS

### NOTES

1. Each snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program.
2. 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. Mechanical snubbers shall have met the acceptance criteria subsequent to their most recent service, and the freedom-of-motion test must have been performed within 12 months before being installed in the unit.
3. As used herein, type of snubber shall mean snubbers of the same design and manufacturer, irrespective of capacity.

TEST	FREQUENCY
<p>TR 16.9.15.1</p> <p>NOTES</p> <ol style="list-style-type: none"> <li>1. Snubbers are categorized as inaccessible or accessible during reactor operation and may be inspected independently according to the schedule determined by Table 16.9.15-1.</li> <li>2. The first inspection interval using Table 16.9.15-1 shall be based upon the previous inspection interval as established by the requirements in effect before Technical Specification amendment 126.</li> </ol> <p>Perform a visual inspection for each category of snubber.</p>	In accordance with Table 16.9.15-1
<p>TR 16.9.15.2</p> <p>NOTE</p> <p>In case of a severe dynamic event, mechanical snubbers in that system which experienced the event shall be inspected during the refueling outage to assure that the mechanical snubbers have freedom of movement and are not frozen up</p> <p>Perform an inspection to determine if there has been a severe dynamic event for systems which have the potential for a severe dynamic event.</p>	18 months

(continued)

TESTING REQUIREMENTS (continued)

TEST	FREQUENCY
<p>TR 16.9.15.3 -----NOTE-----</p> <ol style="list-style-type: none"> <li>1. The large bore steam generator hydraulic snubbers shall be treated as a separate population for functional test purposes and are functional tested under Sample Plan 1.</li> <li>2. If testing continues under Sample Plan 2 to between 100-200 snubbers(or 1-2 weeks) and the accept region has not been reached, then the actual % of population quality (C/N) should be used to prepare for extended or 100% testing.</li> </ol> <p>-----</p> <p>Perform snubber functional testing on a representative sample of each type of snubber in accordance with one of the following three Sampling Plans:</p> <ol style="list-style-type: none"> <li>1. Functionally test 10% of a type of snubber with an additional 10% tested for each functional testing failure, or</li> <li>2. Functionally test a sample size and determine sample acceptance or continue testing using Figure 16.9.15-1, or</li> <li>3. Functionally test a representative sample size and determine sample acceptance or rejection using the stated equation.</li> </ol>	<p>18 months</p>
<p>TR 16.9.15.4 -----NOTE-----</p> <p>The parts replacement shall be documented and the documentation shall be retained for the duration of the unit operating license.</p> <p>-----</p> <p>Verify that the service life of hydraulic snubbers has not been exceeded or will not be exceeded prior to the next scheduled surveillance inspection.</p>	<p>18 months</p>

## BASES

This commitment contains requirements for plant snubbers. There are snubbers installed for seismic loads only (i.e., those loads induced by seismic events, "earthquakes") and snubbers that are installed for the combined effects of both seismic loads and non-seismic loads (i.e., those dynamic loads induced by operational events such as steamhammer, waterhammer, LOCAs, and pipe rupture). Thus for the purpose of this commitment, there are two categories of snubbers:

- 1) snubbers which have only seismic loads, and snubbers which have both seismic and non-seismic loadings, but Engineering has determined that the non-seismic loads are insignificant and do not effect the operability of the associated system. Since the seismic loads are those of significance, these snubbers are termed "Seismic Snubbers" in this commitment; and
- 2) snubbers which have both seismic and non-seismic loadings and Engineering has determined that the non-seismic loads are significant and do effect the operability of the associated system.

The Remedial Actions for each of these snubber categories are discussed below. Remedial Action F.1 and the Testing Requirements of this commitment apply to both categories of snubbers. The programmatic requirements for the visual inspection and functional testing of snubbers do not meet the criteria in 10 CFR 50.36(c)(2)(ii) for inclusion in the plant TS, and as such, are appropriate for control by this commitment and are the same for both categories of snubbers.

The snubber requirements of SLC 16.9.15 were originally located in the Technical Specifications. The Nuclear Regulatory Commission (NRC) authorized the use of these requirements, while located in Technical Specifications, as an acceptable alternative to the requirements of the ASME Code, 1989 Edition, Section XI, Article IWF-5000 (References 3, 4). Any revision to these snubber visual inspection and functional test requirements shall consider the basis for the granted relief from the ASME Code requirements and any resulting requirement for NRC review and approval.

All snubbers are required OPERABLE to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads. Snubbers excluded from this inspection program are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed, would have no adverse effect on any safety-related system. Snubbers are classified and grouped by design and manufacturer but not by size. For example, mechanical snubbers utilizing the same design features of the 2 kip, 10 kip, and 100 kip capacity manufactured by Company "A" are of the same type. The same design mechanical snubbers manufactured by Company "B" for the purposes of this specification would be of a different type, as would hydraulic snubbers from either manufacturer.

Snubbers removed from service for any reason cannot be considered OPERABLE since it is not connected to the supported system or component.

## BASES (continued)

### Seismic Snubbers

Seismic snubbers are installed primarily to address loads resulting from a seismic event. However, some seismic snubbers do have other non-seismic loads, but these other loads have been determined to have an insignificant effect on the operability of the associated system, as determined by Engineering. If used, TS LCO 3.0.8 contains the OPERABILITY requirements for seismic snubbers.

LCO 3.0.8 establishes conditions under which systems are considered to remain capable of performing their intended safety function when associated seismic snubbers are not capable of providing their associated support function(s). This LCO states that the supported system is not considered to be inoperable solely due to one or more of these snubbers not being capable of performing their associated support function(s). Thus, any affected supported LCO(s) are not required to be declared not met solely for this reason, if risk is assessed and managed. This is appropriate because a limited length of time is allowed for inspection, testing, maintenance, or repair of one or more of these snubbers not capable of performing their associated support function(s), remedial actions are specified in this commitment, and the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function, and as applicable, due to the availability of the redundant train of the supported system.

If the allowed time expires and the seismic snubber(s) are unable to perform their associated support function(s), the affected supported system's LCO(s) must be declared not met and the Conditions and Required Actions entered in accordance with LCO 3.0.2.

### Snubbers with Both Seismic and Significant Non-Seismic Loads

If the affected snubber has more than one function, one of which **MUST** be seismic loads, then LCO 3.0.8 may be applied. However, there must be a deterministic analysis that demonstrates that the supported system can still perform its function for the non-seismic load(s). For example, if the affected snubber has support functions for both seismic loads and LOCA loads (i.e., blowdown loads), then only that LOCA load is considered deterministically to determine if the system is OPERABLE. If the supported TS system is OPERABLE for the non-seismic loads, then LCO 3.0.8 may be applied to the seismic loads. Otherwise, LCO 3.0.8 may not be applied and the OPERABILITY requirements are contained in this commitment.

### Remedial Actions - A

Remedial Action A applies when one or more seismic snubbers associated with one train of a multiple train system or associated with a single train system are inoperable for maintenance or testing, thus are not capable of providing their associated support function(s). This commitment allows up to 72 hours to restore the seismic snubber(s) before declaring the supported system inoperable, provided there is an immediate determination that one train of Auxiliary Feedwater (AFW) not associated with the inoperable snubbers is OPERABLE (including a minimum set of supporting equipment needed for successful AFW operation), the opposite train of the supported system is OPERABLE, if applicable, and the affected system is logged for tracking in TSAIL. The 72-hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring

## BASES (continued)

while the seismic snubber(s) are not capable of performing their associated support function, and due to the availability of the redundant train of the supported system (if applicable).

At the end of the specified 72-hour period the required seismic snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.

If the provisions of LCO 3.0.8 are not entered, the supported system shall be declared inoperable immediately.

### Remedial Action - B

When one or more seismic snubber(s) are not capable of providing their associated support function(s) to more than one train of a multiple train supported system, this commitment allows 12 hours to restore the seismic snubber(s) before declaring the supported system(s) inoperable, provided there is an immediate determination that there is one train of AFW not associated with the inoperable snubbers OPERABLE (including a minimum set of supporting equipment needed for successful AFW operation). The 12-hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the seismic snubber(s) are not capable of performing their associated support function.

At the end of the specified 12-hour period the required seismic snubbers must be able to perform their associated support function(s), or the affected supported system(s) LCO(s) shall be declared not met.

If the provisions of LCO 3.0.8 are not entered, the supported system shall be declared inoperable immediately.

### Remedial Action - C

When one or more seismic snubbers are not capable of providing their associated support function(s) to one train of a multiple train supported system, and the opposite train of the supported system is inoperable for reasons not related to snubbers, this commitment allows up to 72 hours to restore the seismic snubber(s) before declaring the supported system inoperable provided: 1) there is an immediate determination that there is one train of AFW not associated with the inoperable snubbers OPERABLE (including a minimum set of supporting equipment needed for successful AFW operation), and 2) there is an immediate assessment of risk associated with the resulting configuration and the risk assessment is acceptable. The 72-hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the seismic snubber(s) are not capable of performing their associated support function, and due to an acceptable conclusion of the risk assessment.

At the end of the specified 72-hour period the required seismic snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.

## BASES (continued)

If the provisions of LCO 3.0.8 are not entered, the supported system shall be declared inoperable immediately.

### Risk Assessment and Management

Remedial Action A, B, and C require that risk be assessed and managed. Industry and NRC guidance on the implementation of 10 CFR 50.65(a)(4) (the Maintenance Rule) does not address seismic risk. However, use of these commitments should be considered with respect to other plant maintenance activities, and integrated into the existing Maintenance Rule Process to the extent possible so that maintenance on any unaffected train or subsystem is properly controlled, and emergent issues are properly addressed. When using this commitment to remove seismic snubber(s) from an operable state, the risk assessment must ensure that at least one AFW train (including a minimum set of supporting equipment required for its successful operation) not associated with the inoperable seismic snubber(s) is maintained operable. This risk assessment is tracked by use of the TSAIL program. The risk assessment need not be quantified, but may be a qualitative awareness of the vulnerability of systems and components when one or more snubbers are not able to perform their associated support function. Actions that could be taken include protection of other trains or subsystems for example.

### Remedial Action - D

If the Required Action and associated Completion Time of Condition A, B or C are not met, the applicable ACTIONS for the train(s) or component(s) associated with the inoperable seismic snubber shall be entered immediately.

### Remedial Action - E

Should one or more snubbers which have any significant non-seismic loads be inoperable for the purposes of maintenance or testing. OPERABILITY of the affected system(s) and component(s) must be determined and the applicable ACTIONS entered immediately. If there remains a reasonable assurance of OPERABILITY of the affected system(s) or component(s) with the condition of an inoperable snubber(s), then it is not necessary to enter the respective ACTIONS for inoperable system(s) and component(s).

### Remediate Action - F

Should one or more snubbers (of either category) fail to meet testing acceptance criteria or be discovered in a condition where failure is apparent, an engineering evaluation is to be performed within 72 hours, as described in "Functional Test Failure Analysis".

The snubber-testing program may remove snubbers from service and restore OPERABILITY of the snubber application by replacement with another like snubber. In this situation, if the removed snubber application by replacement with another like snubber. In this situation, if the removed snubber later fails to meet test acceptance criteria, Conditions A, B, C, and E are not applicable since the snubber component has no current required function; however, ACTION F.1 would be applicable. During the 72 hours allowed to perform an engineering evaluation, or at any other time when conditions of the affected system(s) and component(s) are determined

## **BASES (continued)**

to no longer support a reasonable assurance of OPERABILITY, applicable ACTIONS shall be entered immediately.

### Visual Inspections

The visual inspection frequency is based upon maintaining a constant level of snubber protection to systems. Therefore, the required inspection interval varies inversely with the observed snubber failures and is determined by the number of inoperable snubbers found during an 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%) may not be used to lengthen the required inspection interval. Any inspection whose results require a shorter inspection interval will override the previous schedule.

Visual inspections shall verify: (1) that there are no visible indications of damage or impaired OPERABILITY, and (2) attachments to the foundation or supporting structure are secure. Snubbers which appear inoperable as a result of visual inspections shall be classified as 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. A hydraulic snubber found with the fluid port uncovered and all hydraulic snubbers found connected to an inoperable common reservoir shall be classified as unacceptable and may be reclassified acceptable by functionally testing each snubber starting with the piston in the as-found setting, extending the piston rod in the tension direction.

### Refueling Outage Inspections

At each refueling, the systems which have the potential for a severe dynamic event, specifically, the main steam system (upstream of the main steam isolation valves) the main steam safety and power-operated relief valves and piping, auxiliary feedwater system, main steam supply to the auxiliary feedwater pump turbine, and the letdown and charging portion of the NV system shall be inspected to determine if there has been a severe dynamic event.

In case of a severe dynamic event, mechanical snubbers in that system which experienced the event shall be inspected during the refueling outage to assure that the mechanical snubbers have freedom of movement and are not frozen up. The inspection shall consist of verifying freedom of motion using one of the following: (1) manually induced snubber movement; (2) evaluation of in-place snubber piston setting; (3) stroking the mechanical snubber through its full range of travel. If one or more mechanical snubbers are found to be frozen up during this inspection, those snubbers shall be replaced or repaired before returning to power. The requirements of TR 16.9.15.1 are independent of the requirements of this item.

## BASES (continued)

### Functional Testing

During the first refueling shutdown and at least once per refueling thereafter, a representative sample of snubbers shall be tested using one of the following sample plans. The large bore steam generator hydraulic snubbers shall be treated as a separate population for functional test purposes and are functional tested under Sample Plan 1. A 10% random sample from previously untested snubbers shall be tested at least once per refueling outage until the entire population has been tested. This testing cycle shall then begin anew. For each large bore steam generator hydraulic snubber that does not meet the functional test acceptance criteria, at least 10% of the remaining population of untested snubbers for that testing cycle shall be tested. The sample plan shall be selected prior to the test period and cannot be changed during the test period. The NRC shall be notified of the sample plan selected prior to the test period.

1. At least 10% of the required snubbers shall be functionally tested either in place or in a bench test. For each snubber that does not meet the functional test acceptance criteria, an additional 10% of the snubbers shall be functionally tested until no more failures are found or until all snubbers have been functionally tested; or
2. A representative sample of the required snubbers shall be functionally tested in accordance with Figure 16.9.15-1. "C" is the total number of snubbers found not meeting the acceptance requirements (failures). The cumulative number of snubbers tested is denoted by "N." Test results shall be plotted sequentially in the order of sample assignment (i.e., each snubber shall be plotted by its order in the random sample assignments, not by the order of testing). If at any time the point plotted falls in the "Accept region, testing of snubbers may be terminated. When the point plotted lies in the "Continue Testing" region, additional snubbers shall be tested until the point falls in the "Accept" region, or all the required snubbers have been tested. Testing equipment failure during functional testing may invalidate that day's testing and allow that day's testing to resume anew at a later time, providing all snubbers tested with the failed equipment during the day of equipment failure are retested; or
3. An initial representative sample of fifty-five (55) snubbers shall be functionally tested. For each snubber which does not meet the functional test acceptance criteria, another sample of at least one-half the size of the initial sample shall be tested until the total number tested is equal to the initial sample size multiplied by the factor,  $1 + C/2$ , where "C" is the number of snubbers found which do not meet the functional test acceptance criteria. This can be plotted using an "Accept" line which follows the equation  $N = 55(1 + C/2)$ . Each snubber should be plotted as soon as it is tested. If the point plotted falls on or below the "Accept" line, testing may be discontinued. If the point plotted falls above the "Accept" line, testing must continue unless all snubbers have been tested.

The representative samples for the functional test sample plans shall be randomly selected from the required snubbers and reviewed before beginning the testing. The review shall ensure as far as practical that they are representative of the various configurations, operating environments, range of sizes, and capacities. Snubbers placed in the same



## BASES (continued)

locations as snubbers which failed the previous functional test shall be retested at the time of the next functional test but shall not be included in the sample plan. If during the functional testing, additional sampling is required due to failure of only one type of snubber, the functional testing results shall be reviewed at that time to determine if additional samples should be limited to the type of snubber which has failed the functional testing.

Figure 16.9.15-1 was developed using "Wald's Sequential Probability Ratio Plan" as described in "Quality Control and Industrial Statistics" by Acheson J. Duncan.

Permanent or other exemptions from the surveillance program for individual snubbers may be granted by the NRC if a justifiable basis for exemption is presented and, if applicable, snubber life destructive testing was performed to qualify the snubber for the applicable design conditions at either the completion of their fabrication or at a subsequent date.

### 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 rate where required, is present in both tension and compression, within the specified range;
3. Where required, the force required to initiate or maintain motion of the snubber is within the specified range in both directions of travel; and
4. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement.

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.

### Functional Test Failure Analysis

An engineering evaluation shall be made of each failure to meet the functional test acceptance criteria to determine the cause of the failure. The results of this evaluation shall be used, if applicable, in selecting snubbers to be tested in an effort to determine the OPERABILITY of other snubbers irrespective of type which may be subject to the same failure mode.

For the snubbers found inoperable, an engineering evaluation shall be performed on the components to which the inoperable snubbers are attached. The purpose of this engineering evaluation shall be to determine if the components to which the inoperable

## BASES (continued)

snubbers are attached were adversely affected by the inoperability of the snubbers in order to ensure that the component remains capable of meeting the designed service.

If any snubber selected for functional testing either fails to activate or fails to move, i.e., frozen-in-place, the cause will be evaluated and, if caused by manufacturer or design deficiency, all snubbers of the same type subject to the same defect shall be evaluated in a manner to ensure their OPERABILITY. This testing requirement shall be independent of the requirements stated in TR 16.9.15.3 for snubbers not meeting the functional acceptance criteria.

### Service Life

The expected service life for the various seals, seal materials, and applications shall be determined and established based on engineering information and the seals shall be replaced so that the expected service life will not be exceeded during a period when the snubber is required to be OPERABLE.

The service life of a snubber is established via manufacturer input and information through consideration of the snubber service conditions and associated installation and maintenance records (newly installed snubber, seal replaced, spring replaced, in high radiation area, in high temperature area, etc.). The requirement to monitor the snubber service life is included to ensure that the snubbers periodically undergo a performance evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life. The requirements for the maintenance of records and the snubber service life review are not intended to affect plant operation.

## REFERENCES

1. Letter from M. S. Tuckman to NRC, Licensing Position Regarding Snubbers, May 20, 1999.
2. Letter from NRC to H.B. Barron, Licensing Position Regarding Snubbers, July 9, 1999.
3. Letter from H.B. Barron to NRC, Request for Relief 97-005, Snubber Inspections - Performance and Schedule, December 17, 1997.
4. Letter from NRC to H.B. Barron, Relief Request for Snubber Visual examination and Functional Testing, May 27, 1998.
5. Letter from H.B. Barron to NRC, Request for Relief 01-004, June 1, 2001.
6. Letter from NRC to M.S Tuckman, Safety Evaluation of Relief Request No. 01-004, Alternative for Snubber Examinations, January 30, 2002.
7. Letter from G.R. Peterson to NRC, Request for Relief 03-002, March 8, 2004.
8. Letter from G.R. Peterson to NRC, RAI Response, September 22, 2004.
9. Letter from NRC to G.R. Peterson, Safety Evaluation of Relief Request No. 03-002, November 22, 2004.
10. Technical Specification Task Force (TSTF) 372-A, Revision 4, Addition of LCO 3.0.8. Inoperability of Snubbers.
11. TSTF-IG-05-03, Technical Specifications Task Force Implementation Guidance for TSTF-372-A, Revision 4, Addition of LCO 3.0.8, Inoperability of Snubbers.
12. Nuclear System Directive 415, Operational Risk Management (Modes 1-3) per 10 CFR 50.65(a)(4).
13. Federal Register, 70FR23252, Notice of Availability of Model Application Concerning Technical Specification Improvement to Modify Requirements Regarding the Addition of Limiting Condition for Operation 3.0.8 on the Inoperability of Snubbers Using the Consolidated Line Item Improvement Process.

TABLE 16.9.15-1

SNUBBER VISUAL INSPECTION INTERVAL

Population or Category (Notes 1, 2)	NUMBER OF UNACCEPTABLE SNUBBERS		
	Column A Extended Interval (Notes 3, 6)	Column A Repeat Interval (Notes 4, 6)	Column C Reduced Interval (Notes 5, 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	29	56	109

NOTES:

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. The 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.
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.
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.
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 shall be the same as the previous interval.
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.
6. The provisions of SLC 16.2.7 are applicable for all inspection intervals up to and including 48 months.

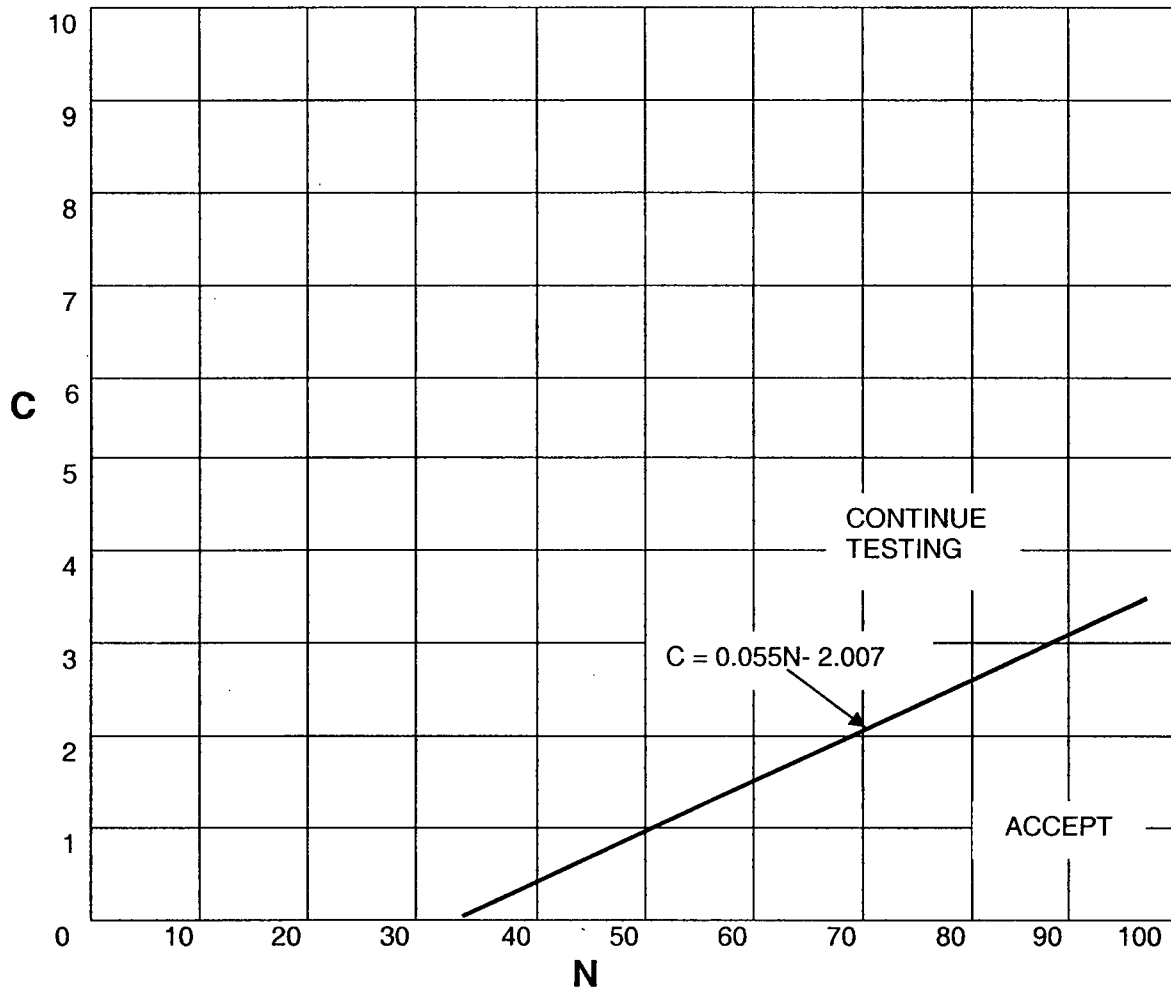


FIGURE 16.9.15-1  
SAMPLE PLAN 2 FOR SNUBBER FUNCTIONAL TEST