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June 1, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Re: Catawba Nuclear Station, Unit 1
Docket No. 50-413
Draft Technical Specifications

Dear Mr. Denton:

This letter transmits our proposed revision to Draft Technical Specification 3/4.7.8 -- SNUBBERS. The justification for the revision was discussed between Mr. Fred Anderson and Mr. Horace Shaw of your staff and representatives of Duke in a meeting held on February 28, 1984. Subsequent discussions and written correspondence have not produced a final resolution acceptable to Duke. A summary of our position is attached.

Very truly yours,

Hal B. Tucker

Hal B. Tucker

RWO/php

Attachment

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PLANT SYSTEMS

3/4.7.8 SNUBBERS

LIMITING CONDITION FOR OPERATION

The only snubbers excluded from this requirement 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.

3.7.8 All snubbers ~~listed in Tables 3.7.4a and 3.7.4b~~ shall be OPERABLE. ←

APPLICABILITY: MODES 1, 2, 3, and 4. MODES 5 and 6 for snubbers located on 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 per Specification 4.7.8g. on the attached component or declare the attached system inoperable and follow the appropriate ACTION statement for that system.

SURVEILLANCE REQUIREMENTS

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

a. Inspection Types

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

b. Visual Inspections

Snubbers are categorized as inaccessible or accessible during reactor operation and may be treated independently. The accessibility of each snubber shall be determined and approved by the Station Health Physicist or qualified designee prior to performing each visual inspection. The determination shall be based upon the then existing radiation levels in each snubber location and the expected time to perform the visual inspection and shall be in accordance with the recommendations of Regulatory Guides 8.8 and 8.10.

The first inservice visual inspection of each type of snubber shall be performed after 4 months but within 10 months of commencing POWER OPERATION and shall include all snubbers, ~~listed in Tables 3.7.4a and 3.7.4b~~. If less than two snubbers of each type are found 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:

CATAWBA - UNIT 1

~~McGUIRE UNITS 1 and 2~~

3/4 7-18

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

<u>No. Inoperable Snubbers of Each Type Found During Inspection</u>	<u>Time Until Subsequent Visual Inspection*#</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. 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 CVCS 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 Specification 4.7.8b. are independent of the requirements of this specification.

d. Visual Inspection Acceptance Criteria

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 may be determined OPERABLE 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;

* The inspection interval for each type of snubber shall not be lengthened more than one step at a time unless a generic problem has been identified and corrected; in that event the inspection interval may be lengthened one step the first time and two steps thereafter if no inoperable snubbers of that type are found.

The provisions of Specification 4.0.2 are not applicable.

CATAWBA - UNIT 1

~~McGUIRE UNITS 1 and 2~~

3/4 7-19

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

d. Visual Inspection Acceptance Criteria (Continued)

and (2) the affected snubber is functionally tested in the as found condition and determined OPERABLE per Specification 4.7.8f. When a fluid port of a hydraulic snubber is found to be uncovered the snubber shall be declared inoperable and shall not be determined OPERABLE via functional testing unless the test is started with the piston in the as-found setting, extending the piston rod in the tension mode direction. All snubbers connected to an inoperable common hydraulic fluid reservoir shall be counted as inoperable snubbers.

e. Functional Tests

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 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 snubbers required by Specification 3.7.8 shall be functionally tested either in place or in a bench test. For each snubber that does not meet the functional test acceptance criteria of Specification 4.7.8f., 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 snubbers required by Specification 3.7.8 shall be functionally tested in accordance with Figure 4.7-1. "C" is the total number of snubbers found not meeting the acceptance requirements of Specification 4.7.8f. The cumulative number of snubbers tested is denoted by "N." At the end of each day's testing, the new values of "N" and "C" (previous day's total plus current day's increments) shall be plotted on Figure 4.7-1. If at any time the point plotted falls in the "Reject" region all snubbers shall be functionally tested. 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 the "Reject" region, or all the snubbers required by Specification 3.7.8 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

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

e. Functional Tests (Continued)

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 plan 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 snubbers required by Specification 3.7.8 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 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.

f. 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 direction 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.

g. 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

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

g. Functional Test Failure Analysis (Continued)

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 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 Specification 4.7.8e. for snubbers not meeting the functional test acceptance criteria.

h. Functional Testing of Repaired and Replaced 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 result 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 freedom-of-motion test must have been performed within 12 months before being installed in the unit.

i. Snubber Seal Replacement Program

The seal service life of hydraulic snubbers shall be monitored to ensure that the service life is not exceeded between surveillance inspections. 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 seal replacements shall be documented and the documentation shall be retained in accordance with Specification 6.10.2.

PLANT SYSTEMS

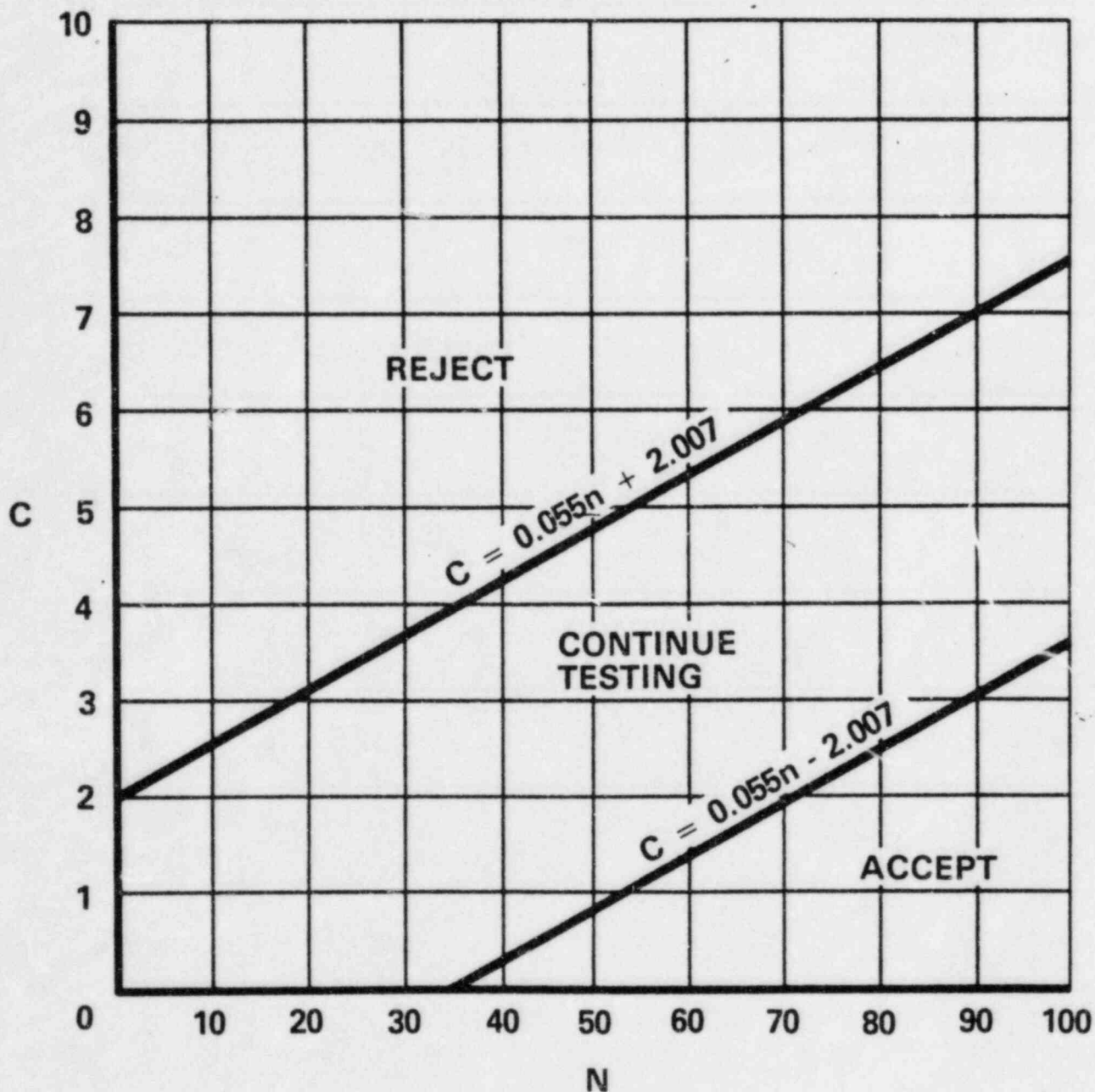


FIGURE 4.7-1
SAMPLE PLAN 2) FOR SNUBBER FUNCTIONAL TEST

CATAWBA - UNIT 1
~~McGUIRE - UNITS 1 and 2~~

3/4 7-29³

BASES3/4.7.7 AUXILIARY BUILDING FILTERED VENTILATION EXHAUST SYSTEM

The OPERABILITY of the Auxiliary Building Filtered Ventilation Exhaust System ensures that radioactive materials leaking from the ECCS equipment within the auxiliary building following a LOCA are filtered prior to reaching the environment. Operation of the system with the heaters operating to maintain low humidity using automatic control for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the safety analyses. ANSI N510-1980 will be used as a procedural guide for surveillance testing.

3/4.7.8 SNUBBERS

~~All snubbers are required OPERABLE~~ ^{provided} 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 Technical Specification would be of a different type, as would hydraulic snubbers from either manufacturer.

A list of individual snubbers with detailed information of snubber location and size and of system affected 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 and approved by the Catawba Safety Review Group. The determination shall be 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 Guides 8.8 and 8.10. The addition or deletions of any hydraulic or mechanical snubber shall be made in accordance with Section 50.59 of 10 CFR Part 50.

BASESSNUBBERS (Continued)

The visual inspection frequency is based upon maintaining a constant level of snubber protection to each safety-related system during an earthquake or severe transient. Therefore, the required inspection interval varies inversely with the observed snubber failures on a given system and is determined by the number of inoperable snubbers found during an inspection of each system. In order to establish the inspection frequency for each type of snubber on a safety-related system, it was assumed that the frequency of snubber failures and initiating events are constant with time and that the failure of any snubber on that system could cause the system to be unprotected and to result in failure during an assumed initiating event. 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.

The acceptance criteria are to be used in the visual inspection to determine OPERABILITY of the snubbers. For example, if a fluid port of a hydraulic snubber is found to be uncovered, the snubber shall be declared inoperable and shall not be determined OPERABLE via functional testing.

To provide assurance of snubber functional reliability, one of three functional testing methods are used with the stated acceptance criteria:

1. Functionally test 10% of a type of snubber with an additional 10% tested for each functional testing failure, or
2. Functionally test a sample size and determine sample acceptance or rejection using Figure 4.7-1, or
3. Functionally test a representative sample size and determine sample acceptance or rejection using the stated equation.

Figure 4.7-1 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 Commission 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. Snubbers so exempted shall be listed in the list of individual snubbers indicating the extent of the exemptions.

BASESSNUBBERS (Continued)

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 snubbers, 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.

3/4.7.9 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(a)(3) 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.

3/4.7.10 FIRE SUPPRESSION SYSTEM

The OPERABILITY of the Fire Suppression Systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety-related equipment is located. The Fire Suppression System consists of the water system, spray, and/or sprinklers, CO₂, and fire hose stations. The collective capability of the Fire Suppression Systems is adequate to minimize potential damage to safety-related equipment and is a major element in the facility Fire Protection Program.

In the event that portions of the Fire Suppression Systems are inoperable, alternate backup fire-fighting equipment is required to be made available in the affected areas until the inoperable equipment is restored to service. When the inoperable fire-fighting equipment is intended for use as a backup means of fire suppression, a longer period of time is allowed to provide an alternate means of fire fighting than if the inoperable equipment is the primary means of fire suppression.

Summary of Duke Power Company
Snubber Technical Specification History

- o Fall 1980 - Discussions continued with the NRC concerning the snubber specification contained in Revision 3 to the Standard Technical Specifications. Disagreements were similar to the present Catawba situation except that they centered on the sampling plan for functional testing. Resolution could not be reached over the phone, so a meeting was arranged.
- o January 8, 1981 - A meeting was held in Bethesda, Maryland led by Ralph Birkel, NRC, with the Staff and Duke Power Company employees (including Doug Collings).

The results of that meeting are detailed in Ralph Birkel's "Summary of Meeting . . ." dated January 15, 1981, which includes the McGuire 1 Snubber Technical Specification (attached).

We believe that the McGuire 1 Technical Specification was the first industry written technical specification which differed significantly from the Standard Technical Specifications and was accepted by the NRC. It established Duke Power Company as an industry leader in this area.

- o February 8, 1983 - A meeting was held in Bethesda (Horace Shaw, Fred Anderson of the NRC Staff and Duke representatives Ron Harris, Bill Smith, and Doug Collings). As McGuire Unit 2 approached Operating License issuance, the Technical Specifications for Unit 1 were to be replaced with Units 1 and 2 Technical Specifications. The McGuire 1 and 2 Technical Specification which resulted from this meeting is an improved version of the McGuire 1 Technical Specification. It is an excellent technical specification (safe, but efficient) and a credit to all those who participated in developing it. (The McGuire Nuclear Station Units 1 and 2 Technical Specification was suggested by the NRC to ANO as a model for their snubber technical specification. The NRC has also referred other utilities to Duke Power Company for help on snubber technical specifications.)
- o Fall 1983 - O&M was rewritten. Although mostly for editorial reasons, this rewrite (brought about through efforts of Stuart Lindsey and Doug Collings) brought the technical content of O&M-4 even closer to the McGuire 1 and 2 Technical Specification.

The people who are knowledgeable and doing the industry and code recognized work are Horace Shaw (NRC), Frank Dicola (Stone & Webster), Dennis Davis (Section XI), Dave Hafley (TVA), Stuart Lindsey, Bill Smith, Doug Collings, and a few others. The current status of ASME Code Section XI OM-4 work reflects considerable effort and expenditure of man-hours by this group. In addition, the McGuire 1 and 2 Technical Specification and the proposed Catawba Nuclear Station Technical Specification have undergone extensive review and refinement by the Duke Power personnel in this group. The current Catawba snubber specification reflects some of this, but includes significant departures which have not been discussed with or reviewed by this group.

Most apparent of the unreviewed departures are visual inspection on a system basis and functional testing by type and/or system.

Duke Power believes inspection on a system basis may not provide adequate protection should a dynamic event occur, because snubber inoperability is not necessarily a system problem. Also, functional testing by type is unnecessarily inefficient -- requiring more testing than is necessary, and providing higher confidence than we have agreed is necessary. Should a new requirement that we must test by system be added, this situation would be compounded.

It is for these reasons that we feel that the Catawba Unit 1 snubber specification should be revised to incorporate the vast amount of work which has been expended to produce the McGuire specification.



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

JAN 15 1981

Docket Nos.: 50-369
and 50-370

APPLICANT: Duke Power Company

FACILITY: McGuire Nuclear Station, Units 1 and 2

SUBJECT: SUMMARY OF MEETING HELD ON JANUARY 8, 1981

A meeting was held with the applicant on January 8, 1981 in Bethesda, Md. to discuss surveillance requirements for piping system snubbers as described in the proposed McGuire Technical specification 3/4. 7.8, "Snubbers, Limiting Condition for Operation". A list of attendees is shown in Enclosure No. 1.

The proposed T.S. 3/4.7.8 was discussed in detail with the applicant and suitably revised to reflect the McGuire design. Significant discussion related to functional testing of snubbers and the sampling plan to be used for this testing. It was agreed that a representative sample of each type of snubber shall be functionally tested according to Technical Specification Figure 4.7.1 which includes acceptance and rejection criteria. On Technical Specification Figure 4.7.1 "C" is the total number of snubbers found with locking velocity or bleed rate not meeting the acceptance requirements. The total number of snubbers tested is denoted by "N". At the end of each days testing, the new total values of N and C (previous day's total plus current day's increments) shall be plotted on Technical Specification Figure 4.7.1. If at any time the point plotted falls in the "Reject" Region, all snubbers of that type shall be functionally tested. If at any time the point plotted falls in the "Accept" region testing of that type of snubber shall 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 the "Reject" region, or all snubbers of that type have been tested.

The results of the discussion with the applicant will be included by the staff in the final technical specification. A draft of these Technical Specification is provided in Enclosure 2.

R. A. Birkel

R. A. Birkel, Project Manager
Licensing Branch No. 1
Division of Licensing

Enclosure:

- (1) Attendance List
- (2) Draft Snubber Technical Specifications 3/4.7.8

~~8102060018~~

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ATTENDANCE LIST

McGUIRE NUCLEAR STATION, UNITS NOS. 1 & 2

January 8, 1981

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K. S. Canady
L. J. Bare
L. M. Coggins
Paul H. Barton
W. N. Keisler
W. E. Smith

NRC Staff

R. A. Birkel
R. J. Kiessel
H. K. Shaw
Keith Wichman
Marty Virgilio
David Vito
David Rubenstein
Ashok Thadani
Adel El Bassioni
W. Vesley

PLANT SYSTEMS3/4.7.8 SNUBBERSLIMITING CONDITION FOR OPERATION

3.7.8 All snubbers listed in Tables 3.7-4a and 3.7-4b shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4. (MODES 5 and 6 for snubbers located on 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 per Specification 4.7.9.c on the supported component or declare the supported system inoperable and follow the appropriate ACTION statement for that system.

SURVEILLANCE REQUIREMENTS

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

a. Visual Inspections

The first inservice visual inspection of snubbers shall be performed after 4 months but within 10 months of commencing POWER OPERATION and shall include all snubbers listed in Tables 3.7-4a and 3.7-4b. If less than two snubbers are found 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>No. 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%

The snubbers may be categorized into two groups: Those accessible and those inaccessible during reactor operation. Each group may be inspected independently in accordance with the above schedule.

*The inspection interval shall not be lengthened more than one step at a time unless a generic problem has been identified and corrected; in that event the inspection may be lengthened one step the first time and two steps thereafter if no inoperable snubbers are found.

#The provisions of Specification 4.0.2 are not applicable.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

b. Visual Inspection Acceptance Criteria

Visual inspections shall verify (1) that there are no visible indications of damage or impaired OPERABILITY, (2) attachments to the foundation or supporting structure are secure, and (3) for mechanical snubbers where snubber movement can be manually induced, the snubbers shall be inspected as follows: (a) At each refueling 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 letdown and charging portion of the CVCS system shall be inspected to determine if there has been a severe dynamic event. (b) In the event of a severe dynamic event snubbers in that system which experienced the event shall be inspected during the refueling outage to assure that the snubbers have freedom of movement and are not frozen up. The inspection shall consist of verifying freedom of motion using one of the following: (i) Manually induced snubber movement; (ii) evaluation of in place snubber piston setting; (iii) 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 overhauled) before returning to power. Re-inspection shall subsequently be performed according to the schedule of 4.7.8(a), but the scope of the examination shall be limited to the systems listed above. 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 in the as found condition and determined OPERABLE per Specifications 4.7.8.d or 4.7.8.e, as applicable. Hydraulic snubbers which have uncovered fluid ports shall be tested by starting with the piston at the as found setting and extending the piston rod in the tension mode direction. All snubbers connected to an inoperable common hydraulic fluid reservoir shall be counted as inoperable snubbers.

c. Functional Tests

At least once per 18 months during shutdown, a representative sample* of either (1) at least 10% of the total of each type of snubber in use in the plant shall be functionally tested either in place or in a bench test. For each snubber that does not meet the functional test acceptance criteria of Specification 4.7.8.d or 4.7.8.e, an additional 10% of that type of snubber shall be functionally tested until no more failures are found or until all snubbers have been functionally tested.

*The requirements of this section for functionally testing mechanical snubbers may be waived until startup following the first refueling outage.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

or (2) A representative sample of each type of snubber shall be functionally tested in accordance with Figure 4.7.1, which includes acceptance and rejection criteria. On Figure 4.7.1, "C" is the total number of snubbers found with locking velocity or bleed rate or drag force (if applied) not meeting the acceptance requirements. The cumulative number of snubbers tested is denoted by "N". At the end of each day's testing, the new values of "N" and "C" (previous day's total plus current day's increments) shall be plotted on Figure 4.7.1. If at any time the point plotted falls in the "Reject" region all snubbers of that type shall be functionally tested. If at any time the point plotted falls in the "Accept" region testing of that type of snubber shall 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 the "Reject" region, or all the snubbers of that type have been tested.

The representative sample selected for functional testing shall include the various configurations, operating environments and the range of size and capacity of snubbers. The representative sample shall be selected randomly from the total population identified in Tables 3.7-4a and 3.7-4b.

Snubbers identified in Tables 3.7-4a and 3.7-4b as "Especially Difficult to Remove" or in "High Radiation Zones During Shutdown" shall also be included in the representative sample.* Tables 3.7-4a and 3.7-4b may be used jointly or separately as the basis for the sampling plan.

In addition to the regular sample, snubbers placed in the same location as snubbers which failed the previous functional test shall be retested during the next test period. Test results of these snubbers shall not be included in the sampling plan.

If any snubber selected for functional testing either fails to lockup 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 design subject to the same defect shall be functionally tested. This testing requirement shall be independent of the requirements stated above for snubbers not meeting the functional test acceptance criteria.

* Permanent or other exemptions from functional testing for individual snubbers in these categories may be granted by the Commission only if a justifiable basis for exemption is presented and/or snubber life destructive testing was performed to qualify snubber operability for all design conditions at either the completion of their fabrication or at a subsequent date.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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

d. Hydraulic Snubbers Functional Test Acceptance Criteria

The hydraulic snubber functional test shall verify that:

1. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.
2. Snubber bleed, or release rate, where required, is within the specified range in compression or tension. For snubbers specifically required to not displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.

e. Mechanical Snubbers Functional Test Acceptance Criteria

The mechanical snubber functional test shall verify that:

1. The force that initiates free movement of the snubber rod in either tension or compression is less than the specified maximum drag force. Drag force shall not have increased more than 50 percent since the last surveillance test.
2. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.
3. Snubber release rate, where required, is within the specified range in compression or tension. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.

f. Snubber Service Life Monitoring

A record of the service life of each snubber, the date at which the designated service life commences and the installation and maintenance records on which the designated service life is based shall be maintained as required by Specification 6.10.2.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

Concurrent with the first inservice visual inspection and at least once per 18 months thereafter, the installation and maintenance records for each snubber listed in Tables 3.7-4a and 3.7-4b shall be reviewed to verify that the indicated service life has not been exceeded or will not be exceeded by more than 10% prior to the next scheduled snubber service life review. If the indicated service life will be exceeded by more than 10% prior to the next scheduled snubber service life review, the snubber service life shall be reevaluated or the snubber shall be replaced or reconditioned so as to extend its service life beyond the date of the next scheduled service life review. The results of the reevaluation may be used to justify a change to the service life of the snubber. This reevaluation, replacement or reconditioning shall be indicated in the records.

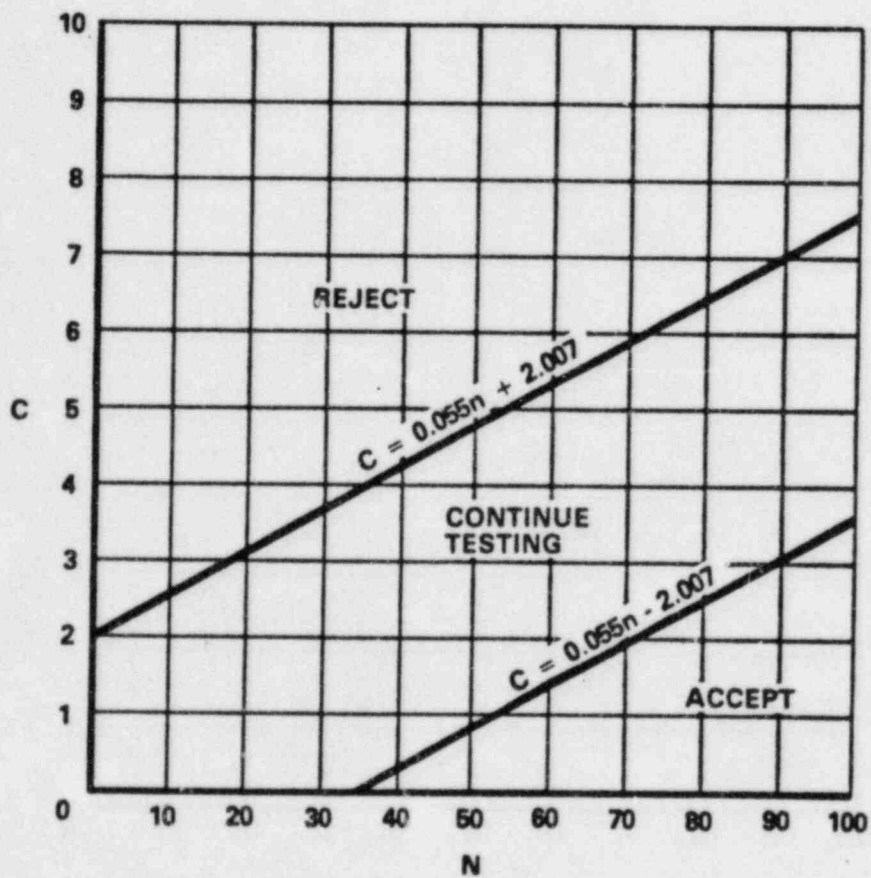


FIGURE 4.7.1 SAMPLING PLAN FOR SUNBBER FUNCTIONAL TEST

TABLE 3.7-4b

SAFETY RELATED MECHANICAL SNUBBERS*

<u>SNUBBER NO.</u>	<u>SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION</u>	<u>ACCESSIBLE OR INACCESSIBLE (A or I)</u>	<u>HIGH RADIATION ZONE DURING SHUTDOWN** (Yes or No)</u>	<u>ESPECIALLY DIFFICULT TO REMOVE (Yes or No)</u>
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The list of Safety Related Mechanical Snubbers will be incorporated into these Technical Specifications prior to commencing POWER OPERATION.

*Snubbers may be added to safety related systems without prior license Amendment to Table 3.7-4b provided that a revision to Table 3.7-4b is included with the next license Amendment request.

**Modifications to this column due to changes in high radiation areas may be without prior License Amendment provided that a revision to Table 3.7-4b is included with the next License Amendment request.

PLANT SYSTEMS

BASES

STANDBY NUCLEAR SERVICE WATER POND (Continued)

exceeding their design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants," March 1974.

3/4.7.6 CONTROL AREA VENTILATION SYSTEM

The OPERABILITY of the control area ventilation system ensures that 1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and 2) the control room will remain habitable for operations personnel during and following all credible accident conditions. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A of 10 CFR 50. ANSI N510-1975 will be used as a procedural guide for surveillance testing.

3/4.7.7 AUXILIARY BUILDING FILTERED EXHAUST SYSTEM (ECCS PUMP ROOM EXHAUST AIR FILTRATION SYSTEM)

The OPERABILITY of the auxiliary building filtered exhaust system ensures that radioactive materials leaking from the ECCS equipment within the auxiliary building 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.

3/4.7.8 SNUBBERS

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 non-safety 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.

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.

PLANT SYSTEMS

BASES

SNUBBERS (Continued)

When the cause of the rejection of a snubber is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible, and verified by inservice functional testing, 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 by visual inspection or are similarly located or exposed to the same environmental conditions, such as temperature, radiation, and vibration.

When a snubber is found inoperable, an engineering evaluation is performed, in addition to the determination of the snubber mode of failure, in order to determine if any safety-related component or system has been adversely affected by the inoperability of the snubber. The engineering evaluation shall determine whether or not the snubber mode of failure has imparted a significant effect or degradation on the supported component or system.

To provide assurance of snubber functional reliability, a representative sample of the installed snubbers will be functionally tested during plant shutdowns at 18-month intervals. The sample size will be determined in accordance with Figure 4.7.1 which has been developed using "Wald's Sequential Probability Ratio Plan" as described in "Quality Control and Industrial Statistics" by Acheson J. Duncan. Hydraulic snubbers and mechanical snubbers may each be treated as a different entity for the above surveillance programs.

The service life of a snubber is evaluated 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.