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June 1, 2001

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: McGuire Nuclear Station Unit 1
Docket No. 50-369
Inservice Inspection Plan (ISI)
Third Ten-Year Interval Plan
Relief Request 01-004

In accordance with 10CFR50.55a and Section XI of the ASME Boiler and Pressure Vessel Code, the second interval of the ISI Plan for McGuire Nuclear Station Unit 1 will end December 1, 2001. This expiration date is based upon the Commercial Service Date of December 1, 1981 for McGuire Unit 1.

In accordance with 10CFR50.55a(g)(4)(ii), the ISI program for Unit 1 shall be revised to comply with the requirements of the latest edition and addenda of the Code incorporated by reference in 10CFR50.55a(b)(2) twelve months prior to start of the third inspection interval. The latest edition of the Code that was referenced by paragraph (b) of 10CFR50.55a at that time was the 1995 Edition through 1996 Addenda.

Pursuant to the requirements of 10CFR50.55a, attached please find a copy of the ISI Plan for McGuire Nuclear Station Unit 1 ("General Requirements", "Volume 1-ISI Examination Listing and Schedule", and "Pressure Test Plan") to be used during the third interval. The associated ISI NDE boundary drawings and ISI Pressure Test boundary drawings are also included. The Steam Generator Inservice Inspection Plan is currently in preparation and will be submitted to the NRC for review by June 29, 2001. As stipulated in the

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requirements of 10CFR50.55a(g), the ISI Plan for Unit 1 of McGuire Nuclear Station will be performed in accordance with the 1995 Edition through 1996 Addenda of the ASME Section XI Code.

Specifically, Section 9 in the "General Requirements" and Section 1.8 in the "Pressure Test Plan" of the enclosed ISI Plan identifies the relief requests requiring NRC review. Relief Request 01-004, "Alternatives for Snubber Examinations", is included with this transmittal and contains the necessary details for review. Attached to Relief Request 01-004 is the referenced Selected Licensee Commitment 16.9.15, "Snubbers". Pursuant to 10CFR 50.55a(a)(3)(i), NRC approval of the enclosed relief is hereby requested.

In addition two referenced requests for relief, Relief Request 01-005, "Application of Risk-Informed Methods to Piping ISI", and Relief Request 01-GO-002, "Allow the Use of Code Case N-416-2", are currently in preparation and will be submitted to the NRC for review by June 29, 2001. Also, the referenced Relief Request 01-002, "Use Corrected ASME Code Requirement for Class 3 Tests", was submitted to the NRC for review on 5/3/2001.

Questions should be directed to Norman T. Simms, McGuire Licensing and Compliance, at (704) 875-4685.

Sincerely,

The image shows a handwritten signature in dark ink, which appears to read 'H. B. Barron'. The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

for
H. B. Barron
McGuire Nuclear Station

Attachments

U.S. Nuclear Regulatory Commission

June 1, 2001

Page 3 of 3

cc w/ att:

Mr. R.E. Martin, Project Manager
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 NRIA File/ELL
 MNS Regulatory Compliance File
 McGuire Master File 1.3.2.13

REQUEST FOR RELIEF 01-004

Duke Energy Corporation

Station McGuire Unit 1THIRD 10-YEAR INTERVAL REQUEST FOR RELIEF NO. 01-004

Pursuant to 10CFR50.55a(a)(3)(i), the proposed alternative provides an acceptable level of quality and safety. Accordingly information is being submitted in support of our determination and a request for relief is being sought from the applicable ASME Section XI requirement(s).

Reference Code: ASME Boiler and Pressure Vessel Code, Section XI 1995 Edition through 1996 Addenda

Note: Third interval scheduled to begin 12/01/01

I. System / Components(s) for Which Relief is Requested:

All Unit 1 safety-related ASME Section XI Code Class 1, 2, and 3 snubbers.

II. Code Requirement from which Relief is Requested:

Relief is requested from the requirement of ASME Section XI, Article IWF- 5000, Subsection IWF-5300. An alternative will be provided from the following requirements.

- (a) "Inservice examinations shall be performed in accordance with ASME/ANSI OM, Part 4, using the VT-3 visual examination method described in IWA-2213."
- (b) "Inservice tests shall be performed in accordance with ASME/ANSI OM, Part 4."
- (c) "Integral and nonintegral attachments for snubbers, including lugs, bolting, pins, and clamps, shall be examined in accordance with the requirements of this Subsection."

III. Basis for Relief:

ASME Section XI, 1995 Edition through 1996 Addenda, Subsection IWF-5300 (a) (b) and (c) specifies that snubber examinations and tests be performed in accordance with ASME/ANSI OM, Part 4.

Snubber examinations and tests are currently performed under the Updated Final Safety Analysis, Chapter 16, Selected Licensee Commitment 16.9.15. All further references to this document will be stated as SLC 16.9.15.

The current inspection program as defined by this SLC 16.9.15 provides for an acceptable level of quality and safety equal to or greater than that of the proposed OM

Standard. The OM Standard provides for Failure Mode Grouping of snubbers which fail visual examination, meaning only those snubbers identified as being in that group would require shortened inspection intervals. Under the SLC 16.9.15 program all snubbers in the population would be placed in a shortened inspection interval. On this basis the existing program is more conservative in corrective action than the OM Standard requirements.

The functional test plan required by the OM Standard also includes Failure Mode Groups. The use of failure mode grouping is required even for a single failure, and in some cases allows for the failed snubber to be reclassified as acceptable with no further testing. This is nonconservative for the large snubber population which exists at McGuire (over 300 snubbers per unit) as compared to the existing SLC 16.9.15 program. The current program at McGuire requires supplemental testing for all failures until the desired confidence level is assured, with no allowances to reclassify failed snubbers.

The testing requirements as described in SLC 16.9.15 are technically identical to those previously required per Technical Specification 3 / 4.7.8. The same acceptable level of quality and safety exist as from the time of the previously approved Request for Relief Serial no. 97-005, per letter from NRC dated May 27, 1998.

IV. Alternate Examination or Testing:

In lieu of implementing the requirements of ASME Section XI, 1995 Edition through 1996 Addenda, Subsection IWF-5300 (a), (b) and (c), it is proposed that the inservice examination and testing be performed under the McGuire Nuclear Station SLC 16.9.15.

V. Justification for the Granting of Relief:

The SLC lists visual examination requirements for snubbers which are compatible with the VT-3 Section XI requirements. The SLC also incorporates the reduced visual examination frequency table as provided in the NRC Generic Letter 90-09. This results in a significant reduction in costs and unnecessary radiological exposure to plant personnel while

maintaining the same confidence level as that provided when following Section XI requirements.

Approval of the alternative provided by this request for relief would save significant company resources and significantly reduce unnecessary radiological exposure to plant personnel when complying with the visual examination requirements without decreasing the confidence level in snubber operability.

The SLC 16.9.15 basis will reference the NRC approval of this relief request and identify that any revision to the snubber visual inspection and functional test requirements of SLC 16.9.15 shall consider the basis for the granted relief from the ASME Code requirements and any resulting requirement for NRC review and approval.

VI. Implementation Schedule:

Snubber visual examination and testing will be scheduled and performed in accordance with the McGuire Nuclear Station SLC 16.9.15.

Evaluated By: Signed by Gary D. Scarboro Date 5/07/01

Reviewed By: Signed by R. Kevin Rhyne Date 5/07/01

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 MODES 1, 2, 3, and 4,
MODES 5 and 6 for snubbers located on systems required
OPERABLE in those MODES.

REMEDIAL ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more snubbers inoperable.	A.1 Enter the applicable ACTIONS for any affected system(s) and component(s) that are determined to be inoperable.	Immediately
B. One or more snubbers failed to meet test acceptance criteria.	B.1 Perform an engineering evaluation.	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 -----NOTES-----</p> <ol style="list-style-type: none"> 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. 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. <p>Perform a visual inspection for each category of snubber.</p>	<p>In accordance with Table 16.9.15-1</p>
<p>TR 16.9.15.2 -----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>	<p>18 months</p>

(continued)

TESTING REQUIREMENTS (continued)

TEST	FREQUENCY
<p>TR 16.9.15.3 -----NOTE-----</p> <ol style="list-style-type: none"> 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. 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. <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"> 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 continue testing using Figure 16.9.15-1, or 3. Functionally test a representative sample size and determine sample acceptance or rejection using the stated equation. 	<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

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.

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.

Remedial Actions - A.1

Should one or more snubbers be inoperable, 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). A snubber removed from service for any reason cannot be considered OPERABLE since it is not connected to the supported system or component.

Remedial Actions - B.1

Should one or more snubbers 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 later fails to meet test acceptance criteria, Condition A is not applicable since the snubber component has no current required function; however, ACTION B.1 would be applicable. During the allowed 72 hours to perform an engineering evaluation or at any other time, when conditions of the affected system(s) and component(s) are determined to no longer support a reasonable assurance of OPERABILITY, applicable ACTIONS are to 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

BASES (continued)

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.

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 functionally 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

BASES (continued)

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 required 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 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.

BASES (continued)

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 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.

BASES (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 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.

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.

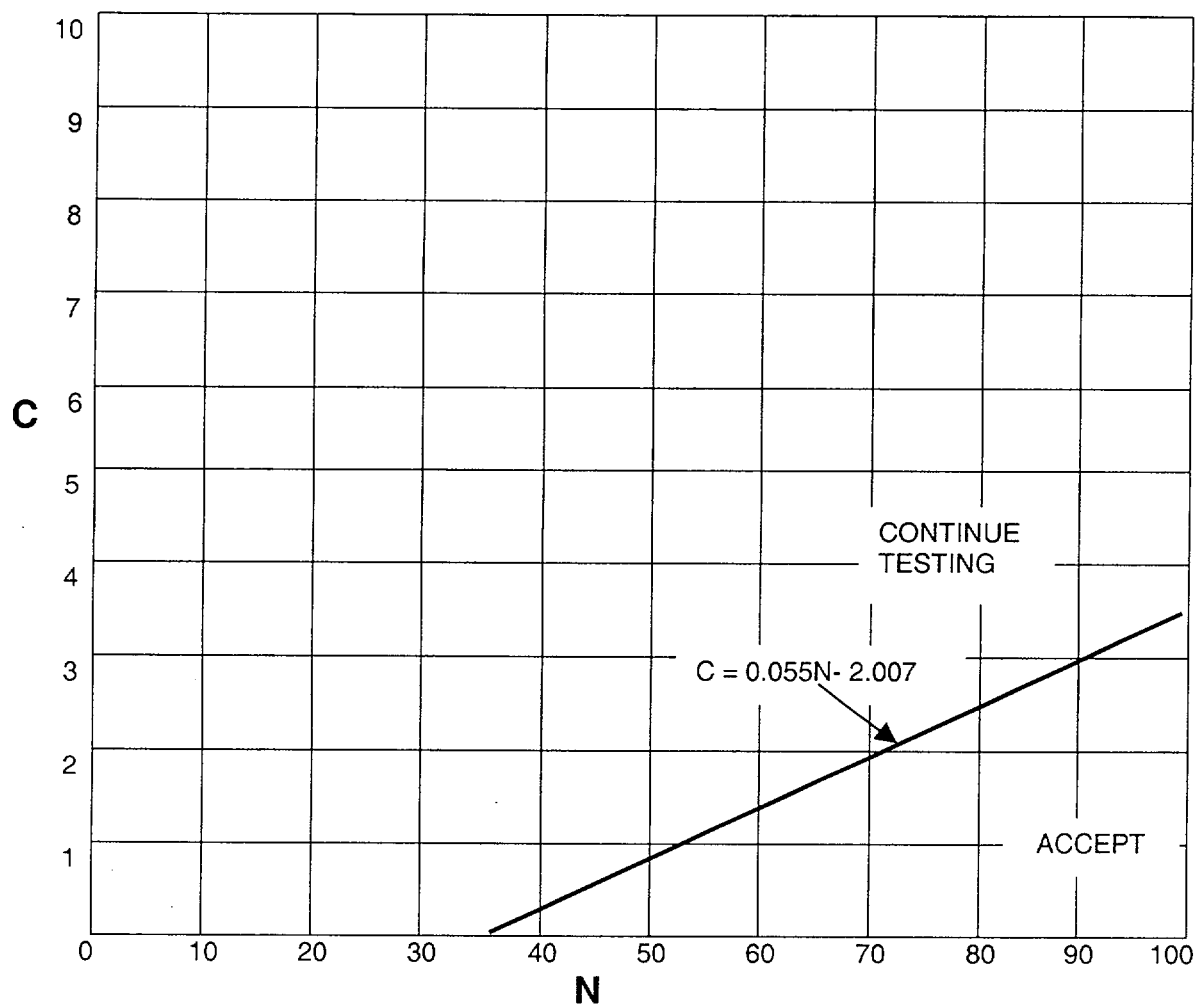


FIGURE 16.9.15-1

SAMPLE PLAN 2 FOR SNUBBER FUNCTIONAL TEST