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U.S. Nuclear Regulatory Commission  
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Subject: Duke Energy  
Oconee Nuclear Station, Units 1, 2, and 3  
Docket Nos. 50-269, 270, 287  
Third Ten Year Inservice Inspection Interval  
Request for Relief No. 02-006

Pursuant to 10 CFR 50.55a(g)(5)(iii), attached is a Request for Alternative to the requirement to perform Inservice examinations of snubbers as specified by the ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition with no Addenda. Specifically, Article IWF-5000, Subarticle IWF-5300, invokes ASME/ANSI Standard OM-1987, Part 4 (published 1988). This request is to allow Duke Energy to take credit for snubber examinations performed in accordance with Selected Licensee Commitment (SLC) 16.9.18. Selected Licensee Commitments are Chapter 16 of the Updated Final Safety Analysis Report. SLC 16.9.18 was formerly a Technical Specification and was relocated from Technical Specifications during conversion to Improved Technical Specifications. The differences between the requirements of SLC 16.9.18 and ASME/ANSI Standard OM-1987, Part 4 are discussed in the attached request. As stated in the attached request, this request is similar to one approved in January 2002 for use at McGuire Nuclear Station.

Under the current condition, Oconee performing examinations to both requirements, which is redundant and not cost effective. We request NRC approval by February 28, 2003 in order to facilitate planning for refueling outages scheduled in 2003. Following approval, the SLC Bases will be revised to reference the approval and associated SER.

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If there are any questions or further information is needed  
you may contact R. P. Todd at (864) 885-3418.

Very truly yours,



W. R. McCollum, Jr.  
Site Vice President

Attachment

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## Duke Energy Corporation

## Station Oconee Units 1, 2 &amp; 3

## THIRD 10-YEAR INTERVAL REQUEST FOR ALTERNATIVE NO. 02-006

Pursuant to 10CFR50.55a(a)(3)(i), Duke Energy Corporation requests to use an alternative to the 1989 Edition with no addenda of Section XI of the ASME Boiler and Pressure Vessel Code. Accordingly, information is being submitted in support of our determination that the alternative provides an acceptable level of quality and safety.

I. System/Component(s) for which Alternative is Requested:

All ASME Section XI Code Class 1, 2, and 3 snubbers.

II. Code Requirement for which Alternative is Requested:

Relief is requested from the requirements of Article IWF-5000, Subarticle IWF-5300.

- (a) "Inservice examinations shall be performed in accordance with the first Addenda to ASME/ANSI OM-1987, Part 4 (published in 1988), using the VT-3 visual examination method described in IWA-2213."
- (b) "Inservice tests shall be performed in accordance with the first Addenda to ASME/ANSI OM-1987, Part 4 (published in 1988)."
- (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 Alternative:

Subarticle IWF-5300 paragraphs (a) and (b) specify that snubber examinations and tests be performed in accordance with the first Addenda to ASME/ANSI OM-1987, Part 4 (published in 1988).

Snubber examinations and tests are also currently performed under the Updated Final Safety Analysis, Chapter 16, Selected Licensee Commitment (SLC) 16.9.18.  
(See Attachment A for a copy of SLC)

The current visual inspection program defined by the SLC provides an acceptable level of quality and safety equal to or greater than that of the required OM standard. One

significant difference between the SLC and the OM standard is the inspection frequency. Paragraph 2.3.2.2 of the first Addenda to the OM standard states that examinations shall be conducted at 18 month intervals ( $\pm 25\%$ ). If unacceptable snubbers are discovered, the interval for subsequent inspections shall be reduced to a period less than 18 months. Reduced inspection frequency is dependant upon the number of unacceptable snubbers found.

Per the SLC, the visual examinations may be conducted at intervals up to a maximum of 48 months ( $\pm 25\%$ ). This interval is altered based on the number of unacceptable snubbers found during the inspection period; however, consideration is given for the snubber population size. The visual examination interval requirements in the SLC are based on NRC Generic Letter 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions." GL 90-09 acknowledges that the 18 month visual inspection schedule (as contained in the OM standard) is excessively restrictive and that some licensees with large snubber populations have spent a significant amount of resources and have subjected plant personnel to unnecessary radiological exposure to comply with the visual examination requirements without increasing the confidence level in snubber operability. GL 90-09 specifically states its alternate schedule for visual inspection provides the same confidence level as the existing (18 month) schedule.

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 program all snubbers in the population would be placed in a shortened inspection interval. On this basis the SLC program is more conservative in corrective action than the OM standard requirements.

ASME Section XI, paragraph IWF-5300(a) requires visual inspections be performed using the VT-3 visual examination method described in paragraph IWA-2213. SLC inspections are similar to the VT-3 method, but inspection personnel are not required to be VT-3 certified. SLC inspections are required to be performed by properly qualified personnel. Duke established Employee Training and Qualification Standards (ETQS) to satisfy the training requirements contained in Duke's Quality Assurance Topical Report as well as other nuclear regulations. The visual inspections are performed using station Maintenance Procedures (MP). The ETQS task number for snubber visual inspection is MM-OT-0918. Individuals performing the visual inspections per the MP must be qualified to task MM-OT-0918 or be under the direction/supervision of a technically qualified individual in accordance with ETQS. This provides satisfactory

assurance that quality visual inspections are performed by competent individuals.

ASME Section XI, paragraph IWF-5300(c) requires integral and nonintegral attachments, including lugs, bolting, pins, and clamps, be examined. The SLC visual acceptance criteria require an equivalent examination. These Visual inspections 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) fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional.

The existing functional testing program defined by the SLC is more conservative than the OM standard. Both programs require testing a minimum of 10% of the snubber population every refueling outage. Per the SLC an additional sample of a minimum of 10% must be tested for each snubber that fails to meet the test acceptance criteria until either none fail or all snubbers have been tested. The OM standard requires the initial sample to be increased by a factor of  $1+C/2$ , where C is the number of snubbers found unacceptable. The SLC testing program requires testing a greater number of snubbers per unacceptable snubber. If one snubber was found unacceptable, the initial sample size would be increased by a factor of 1.5 per the OM standard. Per the SLC the initial sample would be doubled for one failed snubber. The SLC testing program provides for a level of quality and safety equal to or greater than that of the OM standard.

The proposed testing requirements as described in the SLC are similar to those previously approved for the recent Request for Alternative No. 01-004 for McGuire Nuclear Station, Unit 1 and per SER letter dated January 30, 2002.

#### IV. Alternate Examination or Testing:

In lieu of implementing the requirements of ASME Section XI, 1989 Edition with no Addenda, paragraphs IWF-5300 (a), (b) and (c), it is proposed that the inservice examination and testing be performed under Oconee Nuclear Station SLC 16.9.18.

V. Justification for Granting Alternative:

The SLC lists visual examination requirements for snubbers which are compatible with the VT-3 Section XI requirements. The SLC also incorporates the extended visual examination frequency table as provided in NRC Generic Letter 90-09. The use of an alternative eliminates duplicate snubber inspection, one by SLC and one by Section XI. The result is 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.

Should this request be granted, the SLC basis will reference the NRC approval of this request and identify that any revision to the snubber visual inspection and functional test requirements of the SLC shall consider the basis for the granted alternative 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 Oconee Nuclear Station SLC 16.9.18 in subsequent third interval refueling cycles.

Prepared By:

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Date

9-3-02

Reviewed By:

L. Kevin Rhyme

Date

9/3/02

Attachment A

Copy of SLC 16.9.18

16.9 AUXILIARY SYSTEMS

16.9.18 Snubbers

**COMMITMENT** Hydraulic and Mechanical snubbers shall be OPERABLE to support systems and equipment required to be OPERABLE.

**APPLICABILITY:** MODES 1, 2, 3, and 4.  
MODES 5 and 6 for snubbers located on systems required to be OPERABLE in those MODES.

**ACTIONS**

~~NOTE~~

Separate Condition Entry is allowed for each snubber.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more snubbers inoperable.	A.1 Enter the applicable ACTIONS for any system(s) or component(s) made inoperable.	Immediately

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
SR 16.9.18.1 Perform visual inspections of each snubber in accordance with Table 16.9.18-1.	<del>NOTE</del> The provisions of SLC 16.2.7 do not apply.  In accordance with Table 16.9.18-1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 16.9.18.2</p> <p style="text-align: center;">-----NOTE-----</p> <p>The maximum expected service life for the various seals, seal materials, and applications shall be estimated based on engineering information, and the seals shall be replaced so that the maximum expected service life is not exceeded by more than 10% 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 Quality Assurance Requirements.</p> <hr/> <p>Verify that the seal service life of hydraulic snubbers is not exceeded by more than 10% between surveillance inspections.</p>	<p>N/A</p>
<p>SR 16.9.18.3</p> <p>Perform a functional test on a representative sample of hydraulic snubbers and a representative sample of mechanical snubbers in accordance with Table 16.9.18-2.</p>	<p style="text-align: center;">-----NOTE-----</p> <p>The provisions of SLC 16.2.7 do not apply.</p> <hr/> <p>In accordance with Table 16.9.18-2</p>



Table 16.9.18-1 (page 1 of 3)  
Snubber Visual Inspections

Visual Inspections

Snubbers are categorized as inaccessible or accessible during reactor operation. Each of these categories is further divided into hydraulic or mechanical snubbers. Each of these categories (inaccessible hydraulic, inaccessible mechanical, accessible hydraulic, and accessible mechanical) may be inspected independently according to the schedule determined by criteria in this Table. The visual inspection interval for each category of snubber shall be determined based upon the criteria provided in this Table. The first inspection interval determined using this criteria shall be based upon the previous inspection interval as established by the requirements in effect in revision 3/27/99 to SLC 16.9.18.

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,
- (3) fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional, and
- (4) In the event 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 snubbers have freedom of movement and are not seized. 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 seized during this inspection, those snubbers shall be replaced (or overhauled) before exceeding MODE 5. Re-inspection shall subsequently be performed according to the schedule criteria listed below.

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. However, when the fluid port of a hydraulic snubber is found to be uncovered, the snubber 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.

Table 16.9.18-1 (page 2 of 3)  
Snubber Visual Inspections

SNUBBER VISUAL INSPECTION INTERVAL

Population or Category (Notes 1 and 2)	NUMBER OF UNACCEPTABLE SNUBBERS		
	Column A Extend Interval (Notes 3 and 6)	Column B Repeat Interval (Notes 4 and 6)	Column C Reduce Interval (Notes 5 and 6)
1	0	0	1
80	0	0	2
100	0	1	4
150	0	3	8
200	2	5	13
300	5	12	25
400	8	18	36
500	12	24	48
750	20	40	78
1000 or greater	29	56	109

Note 1: The next visual inspection interval for a snubber population or category size shall be determined based upon the previous inspection interval and the number of unacceptable snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. However, the licensee must make and document that decision before any inspection and shall use that decision as the basis for determining the next inspection interval for that category.

Note 2: Interpolation between population or category sizes 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 determined by interpolation.

Note 3: If the number of unacceptable snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months.

Table 16.9.18-1 (page 3 of 3)  
Snubber Visual Inspections

- Note 4: If the number of unacceptable snubbers is equal to or less than the number in Column B but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.
- Note 5: If the number of unacceptable snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of unacceptable snubbers is less than the number in Column C but greater than the number in Column B, the next interval shall be reduced proportionally by interpolation, that is, the previous interval shall be reduced by a factor that is one-third of the ratio of the difference between the number of unacceptable snubbers found during the previous interval and the number in Column B to the difference in the numbers in Columns B and C.
- Note 6:  $\pm 25\%$  is applicable for all inspection intervals up to and including 48 months.

Table 16.9.18-2 (page 1 of 2)  
Snubber Functional Testing

At least once every 18 months +25%, a representative sample, a minimum of 10% of the total of hydraulic and a minimum of 10% of the total mechanical snubbers 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, an additional minimum of 10% of the snubbers shall be functionally tested until none are found inoperative or all have been functionally tested.

The representative sample selected for functional testing shall include the various configurations, operating environments and the range of size and capacity of hydraulic and mechanical snubbers. The representative sample shall be selected randomly from the total population of safety-related hydraulic and mechanical snubbers.

In addition to the regular sample, snubbers which failed the previous functional test shall be retested during the next test period. If a spare snubber has been installed in place of a failed snubber, then both the failed snubber (if it is repaired and installed in another position) and the spare snubber shall be retested. Test results of these snubbers may not be included for the re-sampling, and failures shall not require additional testing of other snubbers.

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

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.
2. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression. (Measuring the time required to travel a known distance, under load, is an acceptable method.)

Table 16.9.18-2 (page 2 of 2)  
Snubber Functional Testing

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.

If any snubber selected for functional testing either fails to lockup or fails to move, i.e., is seized, an engineering evaluation will be performed to determine if the mode of failure could affect other snubbers of the same design. If confirmed, then reporting applicability under 10CFR Part 21 requirements will be assessed.

When a snubber is found inoperable, an engineering and/or operability evaluation will be performed in accordance with appropriate Station procedures.

## BASES

### BACKGROUND

Snubbers are designed to prevent unrestrained pipe motion under dynamic loads as might occur during an earthquake or severe transient, while allowing normal thermal motion during startup or shutdown. The consequence of an inoperable snubber is an increase in the probability of structural damage to piping as a result of a seismic or other event initiating dynamic loads. It is therefore required that all snubbers required to protect the primary coolant system or any other safety system or component be operable during all MODES of required system/component OPERABILITY.

The requirement(s) of this SLC section were relocated from CTS 3.14 and 4.18 during the conversion to ITS.

### APPLICABILITY

All snubbers are required OPERABLE in MODES 1 through 4 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 on safety-related systems required to be OPERABLE in MODES 5 and 6 are maintained OPERABLE to ensure the required systems are maintained OPERABLE. 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.

### ACTION A.1

In the event one or more snubbers are inoperable, OPERABILITY of the affected system(s) and component(s) must be determined and/or the applicable ACTION(s) entered. If there is reasonable assurance of OPERABILITY of the affected system(s) or component(s) with an inoperable snubber(s), then it is not necessary to enter the respective ACTION(s). A snubber removed from service, for any reason, cannot be considered OPERABLE since it is no longer connected to the supported system or component.

### SURVEILLANCE REQUIREMENTS

The visual inspection intervals have been revised to incorporate provisions of Generic Letter 90-09. 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 unless so determined, by the engineer, from a previous window of a schedule. Any inspection whose results require a shorter inspection interval will override the previous schedule.

BASES (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 operability 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.

To provide assurance of snubber functional reliability, a representative sample of the installed hydraulic snubbers will be functionally tested every 18 months. Observed failures of these sample snubbers shall require functional testing of additional units.

Hydraulic snubbers and mechanical snubbers may each be treated as a different entity for the above surveillance programs.

Permanent or other exemptions from the surveillance program for individual snubbers may be granted by the Nuclear Regulatory 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. Snubbers so exempted shall be listed in a permanent record which references the exemption letter date.

REFERENCES

1. Letter, NRC to H. B. Barron, Licensing Position Regarding Snubbers, July 9, 1999.
2. NRC Generic Letter 90-09