September 7, 2006

Mr. Dhiaa Jamil
Vice President
Catawba Nuclear Station
Duke Power Company LLC
4800 Concord Road
York, SC 29745

SUBJECT: CATAWBA NUCLEAR STATION, UNIT 1, REQUEST FOR RELIEF FOR SNUBBER VISUAL EXAMINATION AND FUNCTIONAL TESTING RELATED TO THE THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM (TAC NOS. MC6942 AND MD2811)

Dear Mr. Jamil:

By letter dated April 29, 2005, as supplemented by letter dated May 22, 2006, Duke Power Company LLC (the licensee), submitted Relief Request No. 05–CN-002, for its third 10-year interval inservice inspection (ISI) and inservice testing (IST) programs for snubbers at Catawba Nuclear Station, Unit 1 (Catawba Unit 1). The third 10-year ISI period started June 30, 2005, and will end June 30, 2015. The licensee proposed alternatives to the American Society of Mechanical Engineers (ASME), *Boiler and Pressure Vessel Code* (Code), 1998 edition through the 2000 addenda, for the inspection and testing of snubbers.

The enclosed Safety Evaluation contains the Nuclear Regulatory Commission (NRC) staff's evaluation and conclusions. Based on the information provided in the relief request, the NRC staff has concluded that the licensee's proposed alternative provides an acceptable level of quality and safety. Therefore, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a(a)(3)(i), the NRC staff authorizes the proposed alternative for the third 10-year ISI and IST interval for Catawba Unit 1.

Sincerely,

/RA/

Evangelos C. Marinos, Chief
Plant Licensing Branch II-1
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-413

Enclosure:
Safety Evaluation

cc w/encl: See next page

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Vice President Catawba Nuclear Station
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NAME	JStang	MO'Brien	TLiu*	DRoth (nlo)	EMarinos
DATE	08/21/06	08/30/06	07/28/06	09/07/06	09/07/06

OFFICIAL AGENCY RECORD

cc:

Mr. Randy Hart, Manager
Regulatory Compliance
Duke Energy Corporation
4800 Concord Road
York, South Carolina 29745

Ms. Lisa F. Vaughn
Duke Energy Corporation
526 South Church Street
P. O. Box 1006
Mail Code = EC07H
Charlotte, North Carolina 28201-1006

North Carolina Municipal Power
Agency Number 1
1427 Meadowwood Boulevard
P.O. Box 29513
Raleigh, North Carolina 27626

County Manager of York County
York County Courthouse
York, South Carolina 29745

Piedmont Municipal Power Agency
121 Village Drive
Greer, South Carolina 29651

Ms. Karen E. Long
Assistant Attorney General
North Carolina Department of Justice
P.O. Box 629
Raleigh, North Carolina 27602

NCEM REP Program Manager
4713 Mail Service Center
Raleigh, North Carolina 27699-4713

North Carolina Electric Membership Corp.
P.O. Box 27306
Raleigh, North Carolina 27611

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
4830 Concord Road
York, South Carolina 29745

Mr. Henry Porter, Assistant Director
Division of Waste Management
Bureau of Land and Waste Management
Dept. of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201-1708

Mr. R.L. Gill, Jr., Manager
Nuclear Regulatory Issues
and Industry Affairs
Duke Energy Corporation
526 South Church Street
Mail Stop EC05P
Charlotte, North Carolina 28202

Saluda River Electric
P.O. Box 929
Laurens, South Carolina 29360

Mr. Peter R. Harden, IV, Vice President
Customer Relations and Sales
Westinghouse Electric Company
6000 Fairview Road
12th Floor
Charlotte, North Carolina 28210

Mr. T. Richard Puryear
Owners Group (NCEMC)
Duke Energy Corporation
4800 Concord Road
York, South Carolina 29745

cc:

Division of Radiation Protection
NC Dept. of Environment, Health,
and Natural Resources
3825 Barrett Drive
Raleigh, North Carolina 27609-7721

Mr. Henry Barron
Group Vice President, Nuclear Generation
and Chief Nuclear Officer
P.O. Box 1006-EC07H
Charlotte, NC 28201-1006

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR RELIEF NO. 05-CN-002

CATAWBA NUCLEAR STATION, UNIT 1

DUKE POWER COMPANY LLC

DOCKET NO. 50-413

1.0 INTRODUCTION

By letter dated April 29, 2005, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML051300359) Duke Power Company LLC (the licensee), submitted Relief Request 05-CN-002 for its third 10-year interval inservice inspection (ISI) and inservice testing (IST) programs for snubbers at Catawba Nuclear Station, Unit 1 (Catawba Unit 1). In response to the Nuclear Regulatory Commission (NRC) staff's request for additional information (RAI), the licensee submitted a letter dated May 22, 2006, (ADAMS Accession No. ML061520445).

The licensee requested relief from certain inservice inspection and examination requirements of the American Society of Mechanical Engineers, *Boiler and Pressure Vessel Code* (ASME Code), Section XI, 1998 edition through 2000 addenda, Article IWF-5000. IWF-5000 references ASME/ANSI (American National Standards Institute) OM, Part 4 (OM-4), 1987 edition with OMa-1988. The licensee proposed to perform the above snubber surveillance activities using the Updated Final Safety Analysis Report (UFSAR), Chapter 16, Selected Licensee Commitment (SLC) 16.9-13, "Snubbers." This relief request is for the third 10-year ISI and IST programs for Catawba Unit 1.

2.0 REGULATORY EVALUATION

The ISI and IST of ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the ASME Code and applicable addenda as required by Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a(g), except where specific written relief has been granted by the Commission, pursuant to 10 CFR 50.55a(f)(6)(i) IST and 10 CFR 50.55a(g)(6)(i) ISI. Section 50.55a(a)(3) states that alternatives to the requirements of the paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii)compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in ASME Code, Section XI, to the extent

practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b), twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable edition of Section XI of the ASME Code for the Catawba Unit 1 third 10-year ISI interval is the 1998 edition up to and including the 2000 addenda.

3.0 TECHNICAL EVALUATION

3.1 Relief Request 05-CN-002

3.1.1 Licensee Relief Request

The licensee requested relief from the ASME Code, Section XI, Article IWF-5000, Subarticle IWF-5300(a), (b), and (c) requirements. ASME Section XI, IWF-5300(a) requires that snubber visual examinations be performed in accordance with OM-4, using the VT-3 visual examination method described in IWA-2213. ASME Section XI, IWF-5300(b) requires that snubber inservice tests be performed in accordance with OM-4. ASME Section XI, IWF-5300(c) requires that integral and non-integral attachments for snubbers, including lugs, bolting, pins, and clamps, be examined in accordance with Subsection IWF. Relief was requested for all Catawba Unit 1 safety-related ASME Section XI Code Class 1, 2, and 3 snubbers.

3.1.2 Licensee's Basis for Requesting Relief

ASME Section XI, 1998 edition through 2000 addenda, IWF-5300(a) and (b) specifies that snubber inservice examinations and tests be performed in accordance with the OM-4. IWF-5300(c) requires examinations of integral and non-integral attachments to snubbers, including lugs, bolting, pins, and clamps.

Snubber examinations and tests are currently performed under the UFSAR, Chapter 16, Selected Licensee Commitment (SLC) 16.9-13, "Snubbers." The licensee indicated that the proposed inspection program as defined by this SLC provides for an acceptable level of quality and safety equal to or greater than that of the proposed OM-4.

The SLC lists visual examination requirements for snubbers that are compatible with ASME Section XI VT-3 requirements. The SLC also incorporates the reduced visual examination frequency table as provided in NRC Generic Letter (GL) 90-09. SLC uses results in a significant reduction in unnecessary radiological exposure to plant personnel, a savings in company resources, and compliance with visual examination requirements while maintaining the same confidence level in snubber operability as that provided by following the ASME Section XI requirements.

Failure Mode Grouping

OM-4 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 existing program is more conservative in corrective action than the OM-4 requirements.

The functional test plan required by OM-4 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. The SLC program at Catawba requires supplemental testing for all failures until the desired confidence level is assured, with no allowance to reclassify failed snubbers.

Visual Examinations

IWF-5000 requires that examinations be performed using the VT-3 visual examination method described in IWA-2213. IWA-2213 reads as follows:

"VT-3 examinations are conducted to determine the general mechanical and structural condition of components and their supports by verifying parameters such as clearance, settings, and physical displacements; and to detect discontinuities and imperfections, such as loss of integrity at bolted or welded connections, loose or missing parts, debris, corrosion, wear, or erosion. VT-3 includes examinations for conditions that could affect operability or functional adequacy of snubbers and constant load and spring supports."

The Catawba SLC states that:

"Visual inspections shall verify that: (1) the snubber has no visible indications of damage or impaired operability, (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional."

Catawba Procedure MP/0/A/7650/085, "Visual Inspection of Snubbers," is used to implement the SLC inspections and includes requirements that the following items be checked: loose or missing locking devices, missing spacers, paint or corrosion issues, connecting devices, visible damage, welds, loose jam nuts on extensions, leakage, orientation, fluid level.

The SLC makes no distinction between integral and non-integral attachments. All are included in the examination to verify overall structural integrity. The request is not intended to exclude attachments from examination requirements, but only to use the SLC as the governing document for all examinations. With the SLC and Code requirements being comparable, it is preferable to utilize the SLC in order to maintain consistent programmatic and procedural control between Unit 1 and Unit 2.

3.1.3 Licensee's Proposed Alternative

Inservice examination and testing of snubbers will be performed in accordance with SLC 16.9.13 in lieu of IWF-5300(a), (b), and (c).

3.1.4 NRC Staff's Evaluation of Relief Request 05-CN-002

The licensee requested relief from the requirements of ASME Code, Section XI, paragraphs IWF-5300(a), (b), and (c). The licensee proposed that the inservice visual examinations and functional testing of ASME Code Class 1, 2 and 3 snubbers be performed in accordance with the requirements of Catawba Unit 1 SLC 16.9-13 in lieu of meeting the requirements in ASME Code, Section XI, paragraphs IWF-5300(a), (b) and (c).

ASME Section XI, paragraph IWF-5300(a) requires that inservice visual inspections be performed in accordance with ASME/ANSI OM, Part 4, using the VT-3 visual examination method described in paragraph IWA-2213.

Paragraph, IWF-5300(b) requires that inservice tests be performed in accordance with ASME/ANSI OM, Part 4, OM-4.

Paragraph, IWF-5300(c) requires that integral and non-integral attachments for snubbers, including lugs, bolting, pins, and clamps, be examined in accordance with Subsection IWF.

ASME Code, Section XI, Table IWA-1600-1 states that ASME/OM, Part 4 (OM-4) shall be of edition 1987 with OMa-1988 addenda. OM-4 specifies the requirements for visual examination (paragraph 2.3), and functional testing (paragraph 3.2). The licensee proposes to use the SLC 16.9-13 and its bases for inservice visual examination and functional testing of all safety-related snubbers including lugs, bolting, pins, and clamps. A visual inspection is the observation of the condition of installed snubbers to identify those that are damaged, degraded, or inoperable as caused by physical means, leakage, corrosion, or environmental exposure. To verify that a snubber can operate within specific performance limits, the licensee performs functional testing that typically involves removing the snubber and testing it on a specially designed stand or bench. The performance of visual examinations is a separate process that complements the functional testing program and provides additional confidence in snubber operability.

SLC 16.9-13 incorporates Generic Letter (GL) 90-09, “Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions.” GL 90-09 acknowledges that the visual inspection schedule (as contained in OM-4) is excessively restrictive and that 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. GL90-09 states that its alternative schedule for visual inspection provides the same confidence level as that provided by OM-4.

The licensee states that the SLC makes no distinction between integral and non-integral attachments. All are included in the examination to verify overall structural integrity. The request is not intended to exclude attachments from examination requirements, but only to use the SLC as the governing document for all examinations.

In a response to the NRC staff’s RAI, the licensee states in its letter dated May 22, 2006, that Catawba Unit 1 is not requesting relief from Subarticle IWF-5200, “Preservice Examination and Tests” or IWF-5400, “Repair/Replacement Activities” of the Article IWF-5000, and will continue to use appropriate station procedures and processes to meet these Code requirements.

Catawba SLC 16.9-13 defines inservice examination requirements, method of examination, subsequent examination intervals, failure evaluation, inservice operability test requirements, initial snubber sample size, additional sampling, failure evaluation, test failure mode groups, and corrective actions for the 10% sample and 37 sample plans that are similar to those provided by OM-4. OM-4 requirements and SLC 16.9-13 criteria are compared and summarized in the following table:

	Criteria	ASME/ANSI OM Part 4 -1987 through OMa-1988 addenda	Catawba, Unit 1, SLC 16.9-13 Requirements
Inservice Examination			
1.	Visual Examination	Paragraph 2.3.1.1, Visual Examination, states that snubber visual examinations shall identify impaired functional ability due to physical damage, leakage, corrosion, or degradation.	SLC 16.9-13, Bases requires that visual inspections shall verify that (1) the snubber has no visible indications of damage or impaired operability; (2) attachments to the foundation or supporting structure are functional; and (3) Fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional.
2.	Visual Examination Interval Frequency	Paragraph 2.3.2.2 provides Examination Interval frequency and additional examination requirements.	Table 16.9-13-1 provides snubber visual inspection interval frequency.
3.	Method of Visual Examination	IWF-5300(a) requires use of the VT-3 visual examination method described in IWA-2213.	Catawba states that Catawba Procedure MP/0/A/7650/085, “Visual Inspection of Snubbers,” is used to implement the SLC inspection requirements.
4.	Subsequent Examination Intervals	Paragraph 2.3.2 provides guidance for inservice examination intervals based on the number of unacceptable snubbers discovered.	Table 16.9-13-1 provides a snubber visual inspection interval based on the number of unacceptable snubbers discovered. These requirements are similar to NRC GL 90-09.

	Criteria	ASME/ANSI OM Part 4 -1987 through OMa-1988 addenda	Catawba, Unit 1, SLC 16.9-13 Requirements
5.	Inservice Examination Failure Evaluation	Paragraph 2.3.4.1 states that snubbers not meeting examination and acceptance criteria shall be evaluated to determine the cause of unacceptability. Paragraph 2.3.4.2 states that snubbers found unacceptable, may be tested in accordance with the requirements of paragraph 3.2	SLC 16.9-13, Bases, states that 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 (I) 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 (ii) the affected snubber is functionally tested in the as-found condition and determined operable per acceptance criteria of the SLC.
Inservice Operability Test			
1.	Inservice Operability Test Requirements	Paragraph 3.2.1.1, Operability Test, states that snubber operational readiness tests shall verify activation, release rate, and breakaway force or drag force by either an in-place or bench test.	SLC 16.9-13, Bases states that snubbers shall be functionally tested either in-place or in a bench test. Functional test acceptance criteria requires a functional test to verify activation in tension and compression, force required to initiate or maintain motion within the specified range in both directions of travel for mechanical snubbers, and snubber bleed or release rate where required.

	Criteria	ASME/ANSI OM Part 4 -1987 through OMa-1988 addenda	Catawba, Unit 1, SLC 16.9-13 Requirements
2.	Snubber Sample size	Paragraph 3.2.3 states that each defined test plan group shall use either a 10% sampling plan; a “37 testing sample plan;” or a “55 testing sample plan” during each refueling outage.	SLC 16.9-13, Bases, Functional Testing specifies sample testing plans. In a response to RAI, the licensee states that Catawba utilizes four groupings for snubbers testing. Separate 10% sample plans for (1) small bore Lisega hydraulic snubbers; (2) Anchor/Darling mechanical snubbers, and (3) large bore steam generator snubbers, and a 37 sample plan for PSA mechanical snubbers. The 10% testing sample and 37 testing sample plans are similar to the plans as specified in the OM-4.
3.	Additional Sampling	(a) 10% Testing Sample Plan: Paragraph 3.2.3.1(b) states that for any snubber(s) determined to be unacceptable as a result of testing, an additional sample of at least one-half the size of the initial sample lot shall be tested. (b) 37 Testing Sample Plan: Paragraph 3.2.3.2(b) states that for any snubber(s) determined to be unacceptable as a result of testing, an additional random sample of at least one-half the size of the initial sample lot shall be tested.	(a) 10% Testing Sample Plan: SLC 16.9-13, Bases under functional testing requires an additional 10% of all snubbers shall be tested until no more failures are found or until all snubbers have been functionally tested. (b) 37 Testing Sample Plan: In a response to RAI, the licensee states that SLC 16.9-13 requirements are same as of the OM-4 Code. (Detailed evaluation is provided below, in Item 3 Additional Sampling)

	Criteria	ASME/ANSI OM Part 4 -1987 through OMa-1988 addenda	Catawba, Unit 1, SLC 16.9-13 Requirements
4.	Inservice Operability Failure Evaluation	Paragraph 3.2.4.1 states that snubbers not meeting the operability testing acceptance criteria in paragraph 3.2.1 shall be evaluated to determine the cause of the failure.	SLC 16.9-13, Bases under "Functional Test Failure Analysis" states that an engineering evaluation shall be made of each failure to meet the functional test acceptance criteria to determine the cause of the failure. If any snubber selected for functional testing either fails to lock up or fails to move, i.e., frozen in place, the cause of failure will be evaluated. If the failure is caused by the manufacturer or design deficiency, all snubbers of the same type subject to the same defect shall be functionally tested.
5.	Test Failure Mode Groups	Paragraph 3.2.4.2 states that unacceptable snubber(s) shall be categorized into failure mode group(s). A test failure mode group(s) shall include all unacceptable snubbers that have a given failure mode, and all other snubbers subject to the same failure mode.	SLC 16.9-13, Bases under "Functional Test Failure Analysis" states that all snubbers that fail to meet the functional criteria must be evaluated to determine the cause, and potential for applicability of the failure mode to other snubbers. Further the licensee states that all snubbers susceptible to the same failure conditions would be identified and evaluated, or replaced without categorizing a mode group(s).
6.	Corrective Actions for 10% Testing Sample Plan or 37 Testing Sample Plan	Paragraphs 3.2.5.1 and 3.2.5.2 states that unacceptable snubbers shall be repaired, modified, or replaced.	SLC 16.9-13 states that snubbers which fail the visual inspection or the functional test acceptance criteria shall be repaired or replaced. Replacement snubbers which have repairs which might affect functional test results shall be tested to meet the functional test criteria before installation. In a response to RAI, the licensee states that the SLC makes no allowance for isolated failures. The unacceptable snubbers would be repaired or replaced.

3.1.4.1 Inservice Examination Requirements

(1) Visual Examination

SLC 16.9-13, Bases requires that visual inspections shall verify that (1) the snubber has no visible indications of damage or impaired operability, (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional. The visual examination per SLC 16.9-13 verifies visible indication of damage or impaired operability of snubbers as well as its attachments and supports. OM-4, paragraph 2.3.1.1, requires snubber visual examinations to identify impaired functional ability due to physical damage, leakage, corrosion, or degradation. Therefore, SLC 16.9-13 snubber visual examination requirements are considered to be equivalent to snubber visual examination requirements of OM-4 paragraphs 2.3.1.1.

(2) Visual Examination Interval Frequency

SLC Table 16.9-13-1 provides snubber visual inspection interval frequency requirements which are different than the OM-4 visual inspection interval requirements. Table 16.9-13-1 incorporates the visual inspection interval frequency as specified in Generic Letter (GL) 90-09, “Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions.” GL 90-09 acknowledges that the visual inspection interval frequency (as contained in OM-4) is excessively restrictive and that 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. GL 90-09 states that its alternative schedule (interval frequency) for visual inspection provides the same confidence level as that provided by OM-4. Therefore, this alternative provides an acceptable level of quality and safety.

(3) Method of Visual Examination

IWF-5300(a) requires that inservice examination be performed in accordance with ASME/ANSI OM, Part 4, using the VT-3 visual examination method described in IWA-2213. IWA-2213 states that VT-3 examinations are conducted to determine the general mechanical and structural condition of components and their supports by verifying parameters such as clearance, settings, and physical displacements; and to detect discontinuities and imperfections, such as loss of integrity at bolts and welded connections, loose or missing parts, debris, corrosion, wear, or erosion. VT-3 includes examinations for conditions that could affect operability or functional adequacy of snubbers and constant load and spring type supports.

Catawba SLC states that: “Visual inspections shall verify that (1) the snubber has no visible indications of damage or impaired operability, (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional.”

The licensee states that “Catawba Procedure MP/0/A/7650/085, 'Visual Inspection of Snubbers,' is used to implement the SLC inspections and includes requirements that the following items be checked: loose or missing locking devices, missing spacers, paint or corrosion issues, connecting devices, visible damage, welds, loose jam nuts on extensions, leakage, orientation, fluid level.”

The licensee makes the argument that the intent and scope of IWA-2213 and SLC are essentially equals, although the Code wording is more detailed than the SLC in listing specific items to be included. However, these items are intuitive to meeting the SLC requirements and are more specifically addressed in the implementing procedure, which closely parallels the Code list. SLC examinations are performed using task qualified personnel who are specifically trained for the SLC examinations and who are familiar with snubber and component support operation and maintenance. Also the SLC makes no distinction between integral and non-integral attachments. All are included in the examination to verify overall structural integrity.

Therefore, the intent and scope of OM-4, VT-3 examination requirements are equivalent to the Catawba SLC Visual inspection requirements. Therefore, the NRC staff finds the licensee's method of snubber visual inspection provides an acceptable level of quality and safety and is acceptable.

(4) Subsequent Examination Intervals

SLC Table 16.9-13-1 establishes subsequent snubber visual inspection intervals based on the number of unacceptable snubbers discovered, in lieu of OM-4, paragraph 2.3.2 requirements. These requirements are equivalent to the guidance provided in GL 90-09, which has been approved for use by the NRC. Therefore, the NRC staff finds that the subsequent examination intervals contained in SLC Table 16.9-13-1 provide an acceptable level of quality and safety and is acceptable.

(5) Inservice Examination Failure evaluation

OM-4, paragraph 2.3.4.1 requires that snubbers not meeting examination criteria be evaluated to determine the cause of unacceptability. Paragraph 2.3.4.2 states that snubbers found unacceptable, may be tested in accordance with the requirements of paragraph 3.2. SLC 16.9-13, states that 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 (I) 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 (ii) the affected snubber is functionally tested in the as-found condition and determined operable per acceptance criteria of the SLC. The licensee's program is considered to be equivalent to the requirements of OM-4. Therefore, the NRC staff finds that the SLC's inservice examination failure evaluation requirements provide an acceptable level of quality and safety.

4.1.4.2 Inservice Operability Testing

(1) Inservice Operability Test Requirements

SLC 16.9-13, Bases, states that snubbers shall be functionally tested either in-place or in a bench test. SLC functional test acceptance criteria requires a functional test to verify (1) activation in tension and compression, (2) snubber bleed or release rate where required for mechanical snubbers, (3) the force required to initiate or maintain motion is within the specified range in both direction of travel, and (4) the ability to withstand load without displacement. OM-4, paragraph 3.2.1.1, Operability Test, states that snubber operational readiness tests verify activation, release rate, and breakaway force or drag force by either an in-place or bench

test. The staff finds that the SLC requirements are considered to be equivalent to the snubber operability test requirements of OM-4 paragraph 3.2.1. Therefore, the SLC functional test requirements provide an acceptable level of quality and safety.

(2) Snubber Sample Size

SLC 16.9-13, Bases, Functional Testing states that at least 10% of all snubbers shall be functionally tested either in-place or in a bench test. These tests are normally performed during refueling outages. OM-4, Section 3.2.3 requires either a 10% testing sampling plan, a “37 testing sample plan,” or a “55 testing sample plan.” In a response to an RAI, the licensee states that currently Catawba is using four grouping for snubbers testing. Separate 10% sample plans are used for small bore Lisega hydraulic snubbers, Anchor/Darling mechanical snubbers, and large bore steam generator snubbers, and a 37 sample plan is used for PSA mechanical snubbers. The 10% testing sample and 37 testing sample plans are similar to the plans as specified in the OM-4. As a result, the number of snubbers tested during outages are considered to be equivalent to the OM-4 requirements. Therefore, the SLC requirements of snubber sample size provide an acceptable level of quality and safety.

(3) Additional Sampling

(a) For 10% snubbers sample plan

SLC 16.9-13 states that for each snubber of a type that does not meet the functional test acceptance criteria, an additional 10% of all snubbers shall be functionally tested until no more failures are found or until all snubbers have been functionally tested. OM-4, paragraph 3.2.3.1(b) requires that an additional sample size must be at least one-half the size of the initial sample size of the “defined test plan group” of snubbers. That is, for a 10% sample program, an additional 5% of the same type of snubber in the overall population would need to be tested. Therefore, SLC 16.9-13 requirements for additional sampling for a 10% sample plan are considered to be acceptable.

(b) For 37 snubbers sample plan

OM-4, paragraph 3.2.3.2(b) states that for any snubber(s) determined to be unacceptable as a result of testing, an additional random sample of at least one-half the size of the initial sample lot shall be tested until the total number tested (N) is equal to the initial sample size multiplied by the factor 1+ C/2, where C is the total number of snubbers found to be unacceptable. For a 37 sample plan, this is represented as an equation $N = 37(1 + C/2)$ in Appendix C of the OM-4 Code. The SLC requirement is the same as it requires a representative random sample of each test group to satisfy the equation $C = 0.055N - 2.007$, where N = the number tested, and C = the number of unacceptable snubbers. For the initial sample (C =0), this equation gives N = 36.5 snubbers, rounding up to 37. Likewise, for each failure the additional snubbers test required will round up to 18, which matches the number required in the Code equation. Therefore, SLC 16.9-13 requirements for additional sampling for the 37 sample plan are considered to be acceptable.

(4) Inservice Operability Failure evaluation

OM-4 paragraph 3.2.4.1 requires that snubbers not meeting operability testing acceptance criteria in paragraph 3.2.1 are to be evaluated to determine the cause of the failure. The cause of failure evaluation requires to review the information related to other unacceptable snubbers and determine whether other snubbers of similar design would require further examination. SLC 16.9-13, Bases under "Functional Test Failure Analysis" states that an engineering evaluation shall be made of each failure to meet the functional test acceptance criteria to determine the cause of the failure. If any snubber selected for functional testing either fails to lock up or fails to move, i.e., frozen in place, the cause of failure will be evaluated. If the failure is caused by the manufacturer or design deficiency, all snubbers of the same type subject to the same defect shall be functionally tested. Therefore, the NRC staff finds that the SLC requirements related to inservice operability failure evaluation are considered to be equivalent to the OM-4 requirements.

(5) Test Failure Mode Groups

OM-4 paragraph 3.2.4.2 requires that unacceptable snubber(s) be categorized into failure mode group(s). A test failure mode group shall include all unacceptable snubbers that have a given failure mode, and all other snubbers subject to the same failure mode. SLC 16.9-13, Bases under "Functional Test Failure Analysis" states that all snubbers that fail to meet the functional criteria must be evaluated to determine the cause, and potential for applicability of the failure mode to other snubbers. Further the licensee states that all snubbers susceptible to the same failure conditions would be identified and evaluated, or replaced with out categorizing a mode group(s). Therefore, the SLC requirements are considered to be equivalent to the OM-4 requirements, and are acceptable.

(6) Inservice Operability Testing Corrective Actions for 10% sample or 37 sample plan

OM-4, paragraphs 3.2.5.1 and 3.2.5.2 require that unacceptable snubbers be adjusted, repaired, modified, or replaced. SLC 16.9-13 states that snubbers which fail the visual inspection or the functional test acceptance criteria shall be repaired or replaced. Replacement snubbers which have repairs which might affect functional test results shall be tested to meet the functional test criteria before installation. In a response to RAI, the licensee states that the SLC makes no allowance for isolated failures. The unacceptable snubbers would be repaired or replaced. Therefore, the NRC staff finds that the SLC corrective actions associated with unacceptable snubbers at Catawba are considered to be equivalent to the OM-4 requirements.

Based on the above discussions, the NRC staff finds that snubber inservice visual examinations and functional testing, conducted in accordance with SLC 16.9-13, provides reasonable assurance of snubber operability and provides a level of quality and safety equivalent to that of ASME Code, Section XI, Subarticles IWF-5300(a), (b) and (c). Therefore, the NRC staff finds the licensee's proposed alternative provides an acceptable level of quality and safety with respect to snubber inservice visual inspection and functional testing. It should be noted that in authorizing Relief Request 05-CN-002, SLC 16.9-13 becomes a regulatory requirement that may be used in lieu of ASME Code, Section XI requirements for performing inservice inspection and testing of snubbers. Changes to these requirements must be reviewed and approved by the NRC staff for authorization pursuant to 10 CFR 50.55a(a)(3) or as an exemption pursuant to 10 CFR 50.12.

4.0 CONCLUSION

Based on the information provided, the NRC staff concludes that the proposed alternative to use SLC 16.9.13 for snubber inservice visual inspection and functional testing activities provides an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the licensee's proposed alternative is authorized for the Catawba Unit 1 third 10-year ISI and IST intervals.

Principal Contributor: G. Bedi, NRR

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