

March 7, 2006

Mr. Charles D. Naslund  
Senior Vice President and Chief Nuclear Officer  
Union Electric Company  
Post Office Box 620  
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT, UNIT 1 - AUTHORIZATION OF RELIEF REQUEST  
NO. I3R-03 FOR SNUBBER VISUAL EXAMINATION AND FUNCTIONAL  
TESTING RELATED TO THE THIRD 10-YEAR INTERVAL INSERVICE  
INSPECTION PROGRAM (TAC NO. MC8176)

Dear Mr. Naslund:

By letter dated August 10, 2005 (ULNRC-05185), Union Electric Company proposed an alternative to the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, 1998 Edition up to and including the 2000 Addenda, with regard to visual examination and functional testing of snubbers for the Callaway Plant, Unit 1 (Callaway). This is Relief Request (RR) I3R-03. Union Electric Company requested to use the snubber surveillance program requirements as defined in Section 16.7.2 of the Callaway Final Safety Analysis Report in lieu of the applicable ASME Code requirements specified in Section XI, Article IWF-5000, for the third 10-year inservice inspection (ISI) interval for Callaway.

Based on the enclosed safety evaluation, the alternative to the requirements in Section XI of the ASME Code in RR I3R-03 provides an acceptable level of quality and safety. Based on this, pursuant to 10 CFR 50.55a(a)(3)(i), the Commission authorizes the proposed alternative in the relief request for the third 10-year ISI interval at Callaway.

Sincerely,

/RA/

David Terao, Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure: Safety Evaluation

cc w/encl: See next page

March 7, 2006

Mr. Charles D. Naslund  
Senior Vice President and Chief Nuclear Officer  
Union Electric Company  
Post Office Box 620  
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT, UNIT 1 - AUTHORIZATION OF RELIEF REQUEST  
NO. I3R-03 FOR SNUBBER VISUAL EXAMINATION AND FUNCTIONAL  
TESTING RELATED TO THE THIRD 10-YEAR INTERVAL INSERVICE  
INSPECTION PROGRAM (TAC NO. MC8176)

Dear Mr. Naslund:

By letter dated August 10, 2005 (ULNRC-05185), Union Electric Company proposed an alternative to the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, 1998 Edition up to and including the 2000 Addenda, with regard to visual examination and functional testing of snubbers for the Callaway Plant, Unit 1 (Callaway). This is Relief Request (RR) I3R-03. Union Electric Company requested to use the snubber surveillance program requirements as defined in Section 16.7.2 of the Callaway Final Safety Analysis Report in lieu of the applicable ASME Code requirements specified in Section XI, Article IWF-5000, for the third 10-year inservice inspection (ISI) interval for Callaway.

Based on the enclosed safety evaluation, the alternative to the requirements in Section XI of the ASME Code in RR I3R-03 provides an acceptable level of quality and safety. Based on this, pursuant to 10 CFR 50.55a(a)(3)(i), the Commission authorizes the proposed alternative in the relief request for the third 10-year ISI interval at Callaway.

Sincerely,  
/RA/  
David Terao, Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure: Safety Evaluation

cc w/encl: See next page

DISTRIBUTION:

PUBLIC	RidsNrrDpr	RidsAcrsAcnwMailCenter
LPLIV Reading	RidsNrrPMJDonohew	ALee
RidsNrrDorl (CHaney/CHolden)	RidsNrrLALFeizollahi	KManoly
RidsNrrDorlLplg (DTerao)	RidsRegion4MailCenter (BJones)	
RidsOgcRp		

**ACCESSION NO.: ML060580568**

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	EEMB/BC	OGC	NRR/LPL4/BC
NAME	JDonohew	LFeizollahi	KManoly	MWoods	DTerao
DATE	2/28/06	2/28/06	02/07/2006	3/2/06	3/7/06

DOCUMENT NAME: E:\Filenet\ML060580568.wpd

OFFICIAL RECORD COPY

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO INSERVICE INSPECTION (ISI) PROGRAM RELIEF REQUEST NO. I3R-03  
SNUBBER VISUAL EXAMINATION AND FUNCTIONAL TESTING  
FOR THE THIRD 10-YEAR ISI INTERVAL  
UNION ELECTRIC COMPANY  
CALLAWAY PLANT, UNIT 1  
DOCKET NO. 50-483

1.0 INTRODUCTION

By letter dated August 10, 2005, Union Electric Company (the licensee) proposed an alternative to the requirements of the American Society of Mechanical Engineers *Boiler and Pressure Vessel Code* (ASME Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 1998 Edition up to and including the 2000 Addenda, Article IWF-5000, with regard to snubber ISI activities at the Callaway Plant, Unit 1 (Callaway). This is Relief Request (RR) I3R-03. ASME Code, Section XI, paragraphs IWF-5300(a) and IWF-5300(b), reference the 1988 Addenda to ASME/American National Standards Institute (ANSI) OM-1987, Part 4 (OMa-4, 1988), for snubber visual examination and functional testing. In addition, paragraphs IWF-5200(c) and IWF-5300(c) require that integral and non-integral attachments for snubbers, including lugs, bolting, pins, and clamps be examined in accordance with the requirements of the ASME Code, Section XI, Subsection IWF.

In RR I3R-03, the licensee requested that visual examination and functional testing of snubbers be performed using the Callaway Final Safety Analysis Report (FSAR), Section 16.7.2, "Snubbers," in lieu of the ASME Code requirements in ASME Code Section XI, Article IWF-5000. The alternative was requested for the third 10-year ISI interval at Callaway Plant. Callaway FSAR, Chapter 16, lists requirements on systems and components with Section 16.7.2 being specifically on snubbers and the snubber requirements being in the form of a limiting condition for operation (LCO), applicability to the reactor modes, specified actions when the snubber LCO is not being met, and the surveillance requirements on the snubbers. This FSAR format follows the format of the Callaway Technical Specifications (TSs) per Section 50.36 of Title 10 of the *Code of Federal Regulations* (10 CFR), but these FSAR requirements are not part of the TSs.

The licensee stated that the ASME Code of record for Callaway for inservice examination and testing of snubbers is the 1998 Edition up to and including the 2000 Addenda of the ASME Code, Section XI.

## 2.0 REGULATORY EVALUATION

The regulations governing the ISI of ASME Code Class 1, 2, and 3 components state that the ISI must be performed in accordance with Section XI of the ASME Code and applicable edition and addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the U.S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.55a(g)(6)(i). Paragraph 50.55a(a)(3) of 10 CFR states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC's Director of the Office of Nuclear Reactor Regulation, if the licensee demonstrates that: (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 pre-service examination requirements, set forth in the 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 the 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) 12 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 Callaway Plant's third 10-year ISI interval is the 1998 Edition up to and including the 2000 Addenda.

## 3.0 TECHNICAL EVALUATION

The NRC's findings with respect to the proposed alternatives and the licensee's RR I3R-03 for Callaway pursuant to 10 CFR 50.55a are given below.

### 3.1 Licensee Relief Request

The licensee requested authorization of an alternative to the requirements in the ASME Code, Section XI, paragraphs IWF-5300(a) and IWF-5300(b), for visual examination and functional testing of ASME Code Class 1, 2, and 3 snubbers, and IWF-5300(c) for integral and non-integral attachments for snubbers, at Callaway.

### 3.2 Code Requirements

ASME Code, Section XI, paragraph IWF-5300(a), requires that snubber inservice examinations be performed in accordance with OMa-4, 1988, using the VT-3 visual examination method described in IWA-2213. Paragraph IWF-5300(b) requires that snubber functional testing be performed in accordance with OMa-4, 1988. 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.

### 3.3 Licensee's Proposed Alternative

Snubber examinations and tests at Callaway are currently performed in accordance with the program described in Callaway FSAR, Section 16.7.2. To resolve the conflict with the ASME Code, Section XI, requirements, the licensee requested relief from the requirements of Article IWF-5000 (Subarticles IWF-5200 and IWF-5300) to allow snubbers to continue to be tested in accordance with Callaway FSAR, Section 16.7.2, in lieu of the noted Code requirements.

### 3.4 Licensee's Basis for Requesting Relief

#### Visual Snubber Examinations

The Callaway FSAR, Section 16.7.2.1.1.a, lists visual examination requirements for snubbers that are compatible with Section XI VT-3 requirements. IWF-5000 requires that examinations be performed using the VT-3 visual examination method described in IWA-2213, which reads as follows (stated in the licensee's application):

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 licensee stated in its application dated August 10, 2005, that the Callaway FSAR, Section 16.7.2.1.1.c, has the following statement:

Visual inspections shall verify that: (1) There are no visible indications of damage or impaired OPERABILITY, (2) Attachments to the foundation or support structure are functional, and (3) Fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional.

The licensee stated that the Callaway procedure that implements the FSAR snubber inspections identifies the following as unacceptable conditions:

- C Indication of damage or impaired operability
- C Dysfunctional attachments to foundation or supporting structure
- C Dysfunctional fasteners securing snubber to component and foundation or supporting structure
- C Damage, deterioration, or deformation of snubber, snubber attachment, structural steel or concrete
- C Extensive corrosion on the support cylinder or housing snap ring
- C Arc strikes anywhere on the component support
- C Weld or paint splatter or other roughness of the support cylinder located in an area which could impede movement of the snubber
- C Obvious signs of binding

- C Missing bolts, load pins, connections or other type of fasteners which are designed to be under load
- C Weld cracks
- C Dysfunctional load pins
- C Fully dislodged spherical bearings
- C Piping or component interference with snubber unless interference is in the designed direction of motion
- C Rotational binding that prevents the snubber from moving as designed.
- C Missing cotter pins or locking devices
- C Insulation interferences

The licensee stated that the differences between the requirements of IWA-2213 and the Callaway FSAR are primarily semantic in nature and that the intent and scope of the two documents are essentially equal, although the ASME Code wording is more detailed than the FSAR in listing specific items to be included. The licensee explained further that those items are intuitive to meeting the FSAR requirements and are more specifically addressed in the implementing procedure that closely parallels the ASME Code listing, and the FSAR examinations are performed by personnel that are qualified to perform VT-3 examinations per IWA-2300.

The licensee stated that the Callaway FSAR also incorporates the reduced visual examination frequency table as provided in NRC Generic Letter 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions," dated December 11, 1990. The licensee explained that this reduced frequency 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 ASME Code, Section XI, requirements.

ASME Code, Section XI, IWF-5300(c), requires that integral and non-integral attachments be examined, but Callaway FSAR, Section 16.7.2, makes no distinction between integral and non-integral attachments and both integral and non-integral attachments are included in the examination to verify overall structural integrity. The licensee stated that visual inspections performed in accordance with FSAR, Section 16.7.2, verify that (1) 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. Because the NRC staff considers that the above FSAR, Section 16.7.2, visual inspections provide an equivalent examination for the integral and non-integral attachments as required by IWF-5300(c), the NRC staff concludes that the FSAR, Section 16.7.2, visual inspections are acceptable.

Based on the above, the NRC staff finds that the snubber visual examination program, as provided in the Callaway FSAR, Section 16.7.2, meets the intent of the ASME Code, Section XI, in the areas of scope of examination, method of examination, subsequent examination interval, and personnel qualifications for VT-3 and, therefore, the NRC staff concludes that the alternative snubber visual examination program is acceptable.

### Snubber Functional Testing

The licensee stated in its application dated August 10, 2005, that the Callaway FSAR, Section 16.7.2 .1.1, testing requirements for snubbers are compatible with OMa-4, 1988. The licensee also stated that OMa-4, 1988, had the statement that snubber operational readiness test shall verify the following:

- a. activation is within the specified range of velocity or acceleration in tension and in compression;
- b. release rate, when applicable, is within the specified range in tension and in compression. For units specifically required not to displace under continuous load, ability of the snubber to withstand load without displacement;
- c. for mechanical snubbers, drag force is within specified limits, in tension and in compression.

The licensee further stated that, in accordance with the Callaway FSAR, the snubber functional test shall verify that:

- a. Activation (restraining action) is achieved within the specified range in both tension and compression;
- b. Snubber bleed, or release rate where required, is present in both tension and compression, within the specified range, and
- c. For mechanical snubbers, the force required to initiate or maintain motion of the snubber is within the specified range in both directions of travel.

The licensee explained that testing methods may be used to measure parameters other than those specified, if those results can be correlated to the specified parameters through established methods.

At least once per 18 months, a representative sample of snubbers of each type shall be tested using either the 10 percent Plan or the 37 Plan. For the 10 percent Plan, each snubber of a type that does not meet the functional test acceptance criteria of Callaway FSAR, Section 16.7.2.1.1.f, an additional 10 percent of that type of snubber shall be functionally tested until no more failure is found or until all snubbers of that type have been functionally tested. For the 37 Plan, a representative sample of 37 snubbers for each snubber type shall be functionally tested in accordance with FSAR, Figure 16.7-1, wherein "C" is the total number of snubbers of a type found not meeting the acceptance requirements of FSAR, Section 16.7.2.1.1.f. The cumulative number of snubbers of a type tested is denoted by "N." At the end of each day's testing, the new value of "N" and "C" (previous day's total plus current day's increments) shall be plotted on Figure 16.7-1. If at any time the point plotted falls in the "Accept" region, testing of that type of snubber may be terminated. When the point plotted lies in the "Continuous Testing" region, additional snubbers of that type shall be tested until the point falls in the "Accept" region or all the snubbers of that type have been tested.

The licensee stated that the Callaway FSAR snubber testing program provides for comprehensive and conservative requirements that are effective in providing a reliable snubber population, which results in increased confidence in plant safety. The licensee explained that the use of the Callaway FSAR addresses the intent and scope of the requirements of ASME Code, Section XI, Article IWF-5000, in a single governing document that can be consistently applied.

Based on the above, the NRC staff finds that the snubber functional testing program, as provided in Callaway FSAR, Section 16.7.2, meets the intent of the ASME Code, Section XI, in the areas of testing requirements, as well as sampling of testing and subsequent sample expansion and, therefore, the NRC staff concludes that the alternative snubber functional testing program is acceptable.

#### Conclusion

Based on the above evaluation, the NRC staff finds that snubber visual examinations and functional testing, conducted in accordance with Callaway FSAR, Section 16.7.2, provide reasonable assurance of snubber operability equivalent to that of the ASME Code, Section XI. Based on this, the NRC staff finds that the licensee's proposed alternative provides an acceptable level of quality and safety with respect to snubber visual inspection and functional testing. It should be noted that in authorizing Relief Request No. I3R-03, FSAR, Section 16.7.2, becomes a regulatory requirement that may be used in lieu of ASME Code, Section XI, requirements for performing inservice inspection and functional testing of snubbers. Any future changes to these requirements shall 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 above evaluation and the information provided by the licensee in its application, the NRC staff concludes that the proposed alternative to use Callaway FSAR, Section 16.7.2, for snubber visual inspection and functional testing provides an acceptable level of quality and safety. Therefore, based on this and pursuant to 10 CFR 50.55a(a)(3)(i), the licensee's alternative in RR I3R-03 is authorized for the Callaway third 10-year ISI interval.

Principal Contributor: Arnold Lee

Date: March 7, 2006

Callaway Plant, Unit 1

cc:

Professional Nuclear Consulting, Inc.  
19041 Raines Drive  
Derwood, MD 20855

John O'Neill, Esq.  
Pillsbury Winthrop Shaw Pittman LLP  
2300 N. Street, N.W.  
Washington, D.C. 20037

Mr. Mark A. Reidmeyer, Regional  
Regulatory Affairs Supervisor  
Regulatory Affairs  
AmerenUE  
P.O. Box 620  
Fulton, MO 65251

U.S. Nuclear Regulatory Commission  
Resident Inspector Office  
8201 NRC Road  
Steedman, MO 65077-1302

Mr. Les H. Kanuckel  
Manager, Quality Assurance  
AmerenUE  
P.O. Box 620  
Fulton, MO 65251

Missouri Public Service Commission  
Governor Office Building  
200 Madison Street  
Jefferson City, MO 65102-0360

Regional Administrator, Region IV  
U.S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011-4005

Mr. H. Floyd Gilzow  
Deputy Director for Policy  
Missouri Department of Natural Resources  
P. O. Box 176  
Jefferson City, MO 65102-0176

Mr. Rick A. Muench  
President and Chief Executive Officer  
Wolf Creek Nuclear Operating Corporation  
P.O. Box 411  
Burlington, KA 66839

Mr. Dan I. Bolef, President  
Kay Drey, Representative  
Board of Directors Coalition for the  
Environment  
6267 Delmar Boulevard  
University City, MO 63130

Mr. Lee Fritz, Presiding Commissioner  
Callaway County Court House  
10 East Fifth Street  
Fulton, MO 65151

Mr. David E. Shafer  
Superintendent, Licensing  
Regulatory Affairs  
AmerenUE  
P.O. Box 66149, MC 470  
St. Louis, MO 63166-6149

Mr. Keith D. Young  
Manager, Regulatory Affairs  
AmerenUE  
P.O. Box 620  
Fulton, MO 65251

Mr. Keith G. Henke, Planner  
Division of Community and Public Health  
Office of Emergency Coordination  
930 Wildwood P.O. Box 570  
Jefferson City, MO 65102

Certrec Corporation  
4200 South Hulen, Suite 630  
Fort Worth, TX 76109

Director, Missouri State Emergency  
Management Agency  
P.O. Box 116  
Jefferson City, MO 65102-0116