

February 7, 2002

Mr. Otto L. Maynard
President and Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
Post Office Box 411
Burlington, KS 66839

SUBJECT: RELIEF REQUEST TO USE CODE CASE N-597 AT WOLF CREEK
GENERATING STATION (TAC NO. MB2453)

Dear Mr. Maynard:

By letter dated July 16, 2001 (ET 01-0023), as supplemented by letter dated November 27, 2001 (ET 01-0033), you proposed, in Relief Request 12R-24, an alternative to the requirements of Section XI, IWA-3100, of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the ASME Code). You proposed to use Code Case N-597, "Requirements for Analytical Evaluation of Pipe Wall Thinning, Section XI, Division 1," for the analytical evaluation of wall thinning of piping at Wolf Creek Generating Station (WCGS). This is for the analytical evaluation of Class 2 and 3 carbon and low-ally steel piping items subject to wall thinning as a result of flow accelerated or other corrosion phenomena.

Based on the enclosed safety evaluation, the staff concludes that the application of Code Case N-597 at WCGS, with clarification of the application of "shall" and "should" in the code case, will provide an acceptable level of quality and safety. Therefore, the alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i) until such time as this code case is incorporated into a future revision of Regulatory Guide (RG) 1.147, "Inservice Inspection Code Case Acceptability - ASME Section XI, Division 1." At that time, if you intend to continue to implement the code case at WCGS, you would need to follow all the provisions of the code case, with any limitations specified in the RG, if any. If you have any questions regarding this matter, contact Jack Donohew, Project Manager, at (301) 415-1307, or at jnd@nrc.gov through the internet.

Sincerely,

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-482

Enclosure: Safety Evaluation

cc w/encl: See next page

February 7, 2002

Mr. Otto L. Maynard
President and Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
Post Office Box 411
Burlington, KS 66839

SUBJECT: RELIEF REQUEST TO USE CODE CASE N-597 AT WOLF CREEK
GENERATING STATION (TAC NO. MB2453)

Dear Mr. Maynard:

By letter dated July 16, 2001 (ET 01-0023), as supplemented by letter dated November 27, 2001 (ET 01-0033), you proposed, in Relief Request 12R-24, an alternative to the requirements of Section XI, IWA-3100, of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the ASME Code). You proposed to use Code Case N-597, "Requirements for Analytical Evaluation of Pipe Wall Thinning, Section XI, Division 1," for the analytical evaluation of wall thinning of piping at Wolf Creek Generating Station (WCGS). This is for the analytical evaluation of Class 2 and 3 carbon and low-ally steel piping items subject to wall thinning as a result of flow accelerated or other corrosion phenomena.

Based on the enclosed safety evaluation, the staff concludes that the application of Code Case N-597 at WCGS, with clarification of the application of "shall" and "should" in the code case, will provide an acceptable level of quality and safety. Therefore, the alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i) until such time as this code case is incorporated into a future revision of Regulatory Guide (RG) 1.147, "Inservice Inspection Code Case Acceptability - ASME Section XI, Division 1." At that time, if you intend to continue to implement the code case at WCGS, you would need to follow all the provisions of the code case, with any limitations specified in the RG, if any. If you have any questions regarding this matter, contact Jack Donohew, Project Manager, at (301) 415-1307, or at jnd@nrc.gov through the internet.

Sincerely,

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-482

Enclosure: Safety Evaluation

cc w/encl: See next page

DISTRIBUTION

PUBLIC

PDIV-2 Reading

RidsNrrDlpmPdiv(SRichards)

RidsNrrPMJDonohew

RidsNrrLAEPeyton

RidsOGCRp

RidsACRSACNWMailCenter

WBateman (RidsNrrDeEmcb)

WJohnson/KBrockman (RidsRgn4MailCenter)

* Memo dated January 8, 2002

GHill (2)

LLund

CLauron

ACCESSION NO.: ML013390458

OFFICE	PDIV-2/PM	PDIV-2/LA	EMCB/SC	OGC	PDIV-2/SC
NAME	JDonohew:as	EPeyton	LLund*	SUttal	SDembek
DATE	1/23/2002	1/23/02	01/08/2002	2/5/02	2/7/2002

OFFICIAL RECORD COPY

Wolf Creek Generating Station

cc:

Jay Silberg, Esq.
Shaw, Pittman, Potts & Trowbridge
2300 N Street, NW
Washington, D.C. 20037

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 311
Burlington, KS 66839

Chief Engineer
Utilities Division
Kansas Corporation Commission
1500 SW Arrowhead Road
Topeka, KS 66604-4027

Office of the Governor
State of Kansas
Topeka, KS 66612

Attorney General
Judicial Center
301 S.W. 10th
2nd Floor
Topeka, KS 66612

County Clerk
Coffey County Courthouse
Burlington, KS 66839

Vick L. Cooper, Chief
Radiation Control Program, RCP
Kansas Department of Health
and Environment
Bureau of Air and Radiation
Forbes Field Building 283
Topeka, KS 66620

Vice President & Chief Operating Officer
Wolf Creek Nuclear Operating Corporation
P. O. Box 411
Burlington, KS 66839

Superintendent Licensing
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

U.S. Nuclear Regulatory Commission
Resident Inspectors Office
8201 NRC Road
Steedman, MO 65077-1032

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO CODE CASE N-597

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

1.0 INTRODUCTION

The inservice inspection of the American Society of Mechanical Engineers (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 Boiler and Pressure Vessel Code (the ASME Code), and the applicable edition and addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(a)(3). Section 50.55a(a)(3) states, in part, that alternatives to the requirements may be used provided 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 preservice 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 inservice examination of components and system pressure tests conducted during the first ten-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 and subject to Commission approval.

By letter dated July 16, 2001, as supplemented by letter dated November 27, 2001, Wolf Creek Nuclear Operating Corporation (the licensee) submitted a request for relief from the ASME Code Section XI (IWA-3100) which provides the process for the disposition of flaw examination evaluations which exceed the acceptance standards for materials and welds specified in the ASME Code, Section III edition applicable to the construction of the component. The flaw evaluation requirement is from the 1989 Edition of the ASME Code, Section XI, no Addenda. The request provides for an analytical evaluation of Class 2 and 3 carbon and low-alloy steel piping items subjected to wall thinning as a result of flow accelerated corrosion (FAC) or other corrosion phenomenon.

2.0 BACKGROUND

2.1 ASME Section XI Code Requirement

ASME Code Section XI (IWA-3100) provides the process for the disposition of flaw examination evaluations which exceed the acceptance standards for materials and welds specified in the ASME Code applicable to the construction of the component.

This provision stipulates that the disposition shall be subjected to review by the regulatory and enforcement authorities having jurisdiction at the plant site. This flaw evaluation requirement for Wolf Creek Generating Station (WCGS) is from the 1989 Edition of the ASME Code, Section XI, no Addenda.

2.2 Proposed Alternative

As an alternative to the requirements of IWA-3100, "Evaluation," the licensee proposes to use the provisions of ASME Code Case N-597, "Requirements for Analytical Evaluation of Pipe Wall Thinning, Section XI, Division 1," for the analytical evaluation of Class 2 and 3 carbon and low-alloy steel piping items subjected to wall thinning as a result of FAC or other corrosion phenomena rather than to repair the component if the construction code minimum wall thickness has been reached. This code case stipulates that the methods of predicting the rate of wall thickness loss and the predicted remaining wall thickness shall be the responsibility of the owner (i.e., the licensee). The licensee plans to implement the code case through the use of industry standard, NSAC-202L-R2, "Recommendations for an Effective Flow Accelerated Corrosion (FAC) Program," for calculating wear rates, forecasting remaining life, and conducting inspections of FAC degradation at WCGS.

3.0 EVALUATION

The ASME Code requires that the component whose flaws exceed the acceptance standards shall be evaluated to determine disposition which shall be subjected to review by the regulatory and enforcement authorities having jurisdiction at the plant site. As an alternative to the ASME Code requirements, the licensee has proposed to use Code Case N-597 for Class 2 and 3 carbon and low-alloy steel piping items. The staff has reviewed this code case previously in preparing its position for incorporation into 10 CFR 50.55a, and determined that it is conditionally acceptable. Since the code case does not address inspection requirements and wall thinning rates, the staff has determined that the code case needs to be reviewed and approved prior to use.

The staff finds that the licensee's use of Code Case N-597 provides an acceptable approach for determining wall thinning as a result of FAC or other corrosion phenomena. However, the approach makes note of the licensee's responsibility in developing the methods of predicting the rate of wall thickness loss and the value of the predicted remaining wall thickness. For the staff to find the use of this code case acceptable, the licensee provided information on the plant inspection and evaluation procedures for calculating wear rates, remaining life, and predicting remaining wall thickness. These procedures are based on NSAC-202L-R2. The licensee plans to eliminate the ambiguities in NSAC-202L-2R through the following definitions of "shall" and

"should" which will be captured within the licensee's plant procedures governing their FAC program:

Shall - denotes a requirement or a mandatory activity.

Should - used to indicate the licensee's firm management expectations. Deviation from these expectations is a departure from the norm and requires supervisory concurrence. Deviations will be noted and approved in writing, which may include logs, procedures, work orders, memos, etc.

The licensee further clarified that from an internal implementation perspective, specific to the FAC program, the use of the term "should" carries the same weight and importance as that of "shall." In addition, the use of these two different terms is a mechanism to distinguish actions that have a direct regulation or operating license commitment basis versus those which do not. This information was provided by the licensee in the supplemental letter dated November 27, 2001.

The licensee stated in its request that it intends to use the code case where a degraded condition not complying with (1) the construction code of record, or (2) the commitments to branch technical position (BTP) MEB 3-1, in the WCGS Updated Safety Analysis Report (USAR), is identified by examination, and it is determined by evaluation in accordance with Code Case N-597 that the item remains acceptable for service. In addition, these piping items will be repaired or replaced during the next refueling outage in accordance with the provisions of the licensee's Section XI repair/replacement program. The staff requested additional discussion on the commitments to BTP MEB 3-1 and the impact that the code case had on these commitments. In response, the licensee stated that the only commitments impacted by the use of this code case are the MEB 3-1 criteria found in USAR Section 3.6.2, "Determination of the Break Locations and Dynamic Effects Associated with the Postulated Rupture of Piping," as a result of changes to the original piping system stresses. This information was also provided in the supplemental letter dated November 27, 2001.

The staff has reviewed this information and concludes that the code case, as implemented through the FAC program, and the repair/replacement of components at the next refueling outage, as implemented through the licensee's Section XI repair/replacement program, provide an acceptable means of managing degraded and non-conforming piping conditions since both design and material conformance issues are addressed.

Components to which this code case is applied must be repaired or replaced in accordance with the construction code of record and the licensee's requirements, or a later approved edition of ASME Code Section III prior to reaching the allowable minimum wall thickness as specified in this code case.

Therefore, based on the above, the staff concludes that the licensee's use of Code Case N-597 and industry standard NSAC-202L-R2, with clarifications of the application of "shall" and "should" in this standard, provides an acceptable level of quality and safety.

4.0 CONCLUSION

Based on the above evaluation, the staff concludes that the use of Code Case N-597 and industry standard NSAC-202L-R2, with clarification of the terms "shall" and "should" in this standard, as an alternative evaluation for Class 2 and 3 carbon and low-alloy steel piping items is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the alternative provides an acceptable level of quality and safety.

Components to which Code Case N-597 is applied must be repaired or replaced in accordance with the construction code of record and the licensee's requirements prior to reaching the allowable minimum wall thickness as specified in this code case. The use of Code Case N-597, with the clarifications on "shall" and "should" stated above, is authorized until such time as the code case is published in a future revision of Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement Code Case N-597, the licensee is to follow all provisions in the code case with limitations or conditions specified in Regulatory Guide 1.147, if any.

Principal Contributor: Carolyn Lauron

Date: February 7, 2002