

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

Richard A. Muench  
Vice President Technical Services

JUL 16 2001

ET 01-0023

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Station P1-137  
Washington, D. C. 20555

Subject: Docket No. 50-482: Relief Request I2R-24, Use of Code Case N-597,  
for Analytical Evaluation of Wall Thinning of Piping Items

Gentlemen:

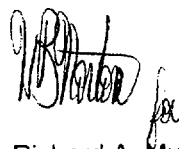
In accordance with 10 CFR 50.55a(a)(3)(i), Wolf Creek Nuclear Operating Corporation (WCNOC) hereby requests Nuclear Regulatory Commission (NRC) approval for the use of an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, IWA-3000 for the use of ASME Section XI Code Case N-597 for the analytical evaluation of wall thinning of piping items. The proposed alternative, as described in Attachment I, "Wolf Creek Nuclear Operating Corporation Request for Relief to Use ASME Code Case N-597," provides an acceptable level of quality and safety as required by 10 CFR 50.55a(a)(3)(i).

WCNOC requests approval of this relief request by February 1, 2002. The approval date was administratively selected to allow for NRC review, but NRC approval by this date is not required to allow continued safe full power operation or to conduct a refueling outage.

Attachment II contains a list of commitments identified in this letter.

If you have any questions concerning this matter, please contact me at (620) 364-4034, or Mr. Tony Harris at (620) 364-4038.

Very truly yours,



Richard A. Muench

RAM/rlr

Attachments

cc: J. N. Donohew (NRC), w/a  
W. D. Johnson (NRC), w/a  
E. W. Merschoff (NRC), w/a  
Senior Resident Inspector (NRC), w/a

A047

**WOLF CREEK NUCLEAR OPERATING CORPORATION  
REQUEST FOR RELIEF TO USE ASME CODE CASE N-597**

**I. System/Components for Which Relief is Requested:**

This relief request applies to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section III Class 2 and Class 3 carbon and low-alloy steel piping items (e.g., piping and fittings) subject to internal or external wall thinning, as a result of flow-accelerated corrosion, or other corrosion phenomena, where the section thickness has been reduced below the minimum design thickness.

**II. Current Code Requirements:**

The current Wolf Creek Inservice Inspection (ISI) Program is prepared to the 1989 Edition of ASME Section XI. Section XI, 1989 Edition, Article IWA-3000, "STANDARDS FOR EXAMINATION EVALUATION," provides the process for assessing a piping item for continued service after a flaw has been identified. IWA-3100(b) states that if acceptance standards for a particular component, examination category, or examination method are not specified in Section XI, flaws that exceed the acceptance criteria of ASME Section III shall be evaluated for disposition. Neither Section III nor Section XI have specific inspection requirements, acceptance criteria, or evaluation techniques that address the need of operating power plants for dispositioning wall thinning.

In addition to the requirements of ASME Section III (the Construction Code), Wolf Creek Generating Station (WCGS) also has specific commitments described in Chapter 3 of the Updated Safety Analysis Report (USAR) pertaining to the application of Branch Technical Position (BTP) MEB 3-1 (and BTP ASB 3-1) for postulation of breaks/cracks in high energy/moderate energy piping.

**III. Alternative and Relief Requested:**

Pursuant to 10 CFR 50.55a(a)(3)(i), an alternative to the requirements described above is requested on the basis that the proposed alternative provides an acceptable level of quality and safety. Wolf Creek Nuclear Operating Corporation (WCNOC) proposes that the requirements of ASME Section XI Code Case N-597 be used for the analytical evaluation of Class 2 and 3 carbon and low alloy steel piping items (e.g., piping and fittings) subject to wall thinning as a result of flow-accelerated corrosion, or other corrosion phenomena, where the section thickness has been reduced below the minimum design thickness. This relief is requested only for non-planar flaws as required by Code Case N-597.

**IV. Basis for Alternative and Relief:**

The ASME approved Code Case N-597, "Requirements for Analytical Evaluation of Pipe Wall Thinning, Section XI, Division 1," in 1998, and reaffirmed the Case on March 28, 2001. Code Case N-597 is not currently approved for use in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." However, footnote 6 to 10 CFR 50.55a(a)(3) provides for the use of other Code Cases upon request, if approved by the Director of the Office of Nuclear Reactor Regulation pursuant to 10 CFR 50.55a(a)(3).

WCNOC has reviewed Code Case N-597, which includes Class 1, 2 and 3 piping items; however, use of Code Case N-597 is requested only for Class 2 and 3 systems at WCGS.

Code Case N-597 stipulates that the methods of predicting the rate of wall thickness loss and the value of the predicted remaining wall thickness shall be the responsibility of the owner. For flow accelerated corrosion, WCNOC has procedure AP 23H-002, "Flow Accelerated Corrosion (FAC) Program," in place which provides detailed requirements for calculating remaining life, predicting remaining wall thickness, and calculating wear rates. This procedure is based on Electric Power Research Institute (EPRI) document NSAC 202L, "Recommendations for an Effective Flow Accelerated Corrosion Program," revision 2, which was issued in April 1999. The calculation of lifetime wear, wear over a period of time, and wear rates consists of using the point-to-point method, the band method, the area method, or the moving blanket method, as appropriate for the geometry being evaluated. These methods, as described in NSAC 202L, are implemented and controlled in WCNOC's Flow Accelerated Corrosion Program procedures. WCNOC currently uses revision G of the CHECWORKS™ program as its Predictive Plant Model.

WCNOC intends to use Code Case N-597 where a degraded condition not complying with the Construction Code or USAR commitments to BTP MEB 3-1 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 cases where Code Case N-597 is implemented for degraded piping items not complying with the USAR commitments to BTP MEB 3-1, these items will be repaired or replaced during the next scheduled refueling outage. This allows time for the procurement of appropriate materials and the planning of the best repair or replacement activity to restore full qualification with the Construction Code and with the WCNOC commitments to BTP MEB 3-1, as described in the USAR. Repairs or replacements will be performed in accordance with the provisions of the WCNOC Section XI Repair/Replacement Program.

In cases where Code Case N-597 is implemented for degraded piping items not complying with the Construction Code, these items will be repaired or replaced prior to reaching the allowable minimum wall thickness, as specified in Code Case N-597. This allows time for the procurement of appropriate materials and the planning of the best repair or replacement activity to restore full qualification with the Construction Code. Repair or replacement, when performed, will be in accordance with the provisions of the WCNOC Section XI Repair/Replacement Program. When the time used to determine the value of  $t_p$  (as defined in Code Case N-597) is greater than one fuel cycle, non-destructive examination of the item will be performed during subsequent refueling outages. Adjustments to the time used to obtain an acceptable  $t_p$  will be made as necessary based on this continued monitoring, and the piping item will be repaired or replaced prior to, or by the time determined by, the provisions of N-597.

The use of the analytical evaluation criteria specified in Code Case N-597 to evaluate wall thinning applicable to non-planar flaws will provide an acceptable level of quality and safety for the time frames for which the evaluation shows acceptability.

**V. Implementation Schedule:**

This relief request will be implemented within 60 days of approval and will be used during Wolf Creek's second Inservice Inspection Interval, which ends in 2005.

Wolf Creek requests approval of this relief request by February 1, 2002.

**VI. Precedents:**

The NRC has previously approved the use of Code Case N-597 for Millstone Units 2 and 3 in a safety evaluation report dated February 23, 1999 (TAC No.s MA3889 and MA3884), and for the Hope Creek and Salem Nuclear Plants in a safety evaluation report dated October 12, 2000 (TAC No.s MA8595, MA8600 and MA8601).

**LIST OF COMMITMENTS**

The following table identifies those actions committed to by Wolf Creek Nuclear Operating Corporation (WCNOC) in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments. Please direct questions regarding these commitments to Mr. Tony Harris, Manager Regulatory Affairs at Wolf Creek Generating Station, (620) 364-4038.

<b>COMMITMENT</b>	<b>Due Date/Event</b>
The relief request to implement Code Case N-597 will be implemented within 60 days of approval.	Within 60 days of approval of the relief request.
In cases where Code Case N-597 is implemented for degraded piping items not complying with the USAR commitments to BTP MEB 3-1, these items will be repaired or replaced during the next scheduled refueling outage.	Concurrent with the implementation of Code Case N-597.
In cases where Code Case N-597 is implemented for degraded piping items not complying with the Construction Code, these items will be repaired or replaced prior to reaching the allowable minimum wall thickness, as specified in Code Case N-597.	Concurrent with the implementation of Code Case N-597.