



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
OF THE FIRST TEN-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN  
KANSAS GAS AND ELECTRIC COMPANY  
WOLF CREEK GENERATING STATION  
DOCKET NO.: 50-482

INTRODUCTION

Technical Specification 4.0.5 for the Wolf Creek Generating Station states that the surveillance requirements for Inservice Inspection and Testing of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Class 1, 2 and 3 components shall be applicable as follows: Inservice Inspection of ASME Code Class 1, 2 and 3 components shall be performed in accordance with Section XI of the ASME Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).

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, "Rules for Inservice Inspection of Nuclear Power Plant Components," 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 systems pressure tests conducted during the first ten-year interval shall 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(g) on the date twelve months prior to the date of issuance of the operating license, subject to the limitations and modifications listed therein. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein.

Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for his facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

On December 11, 1985, Kansas Gas and Electric Company (the licensee) submitted the first ten-year Interval Inservice Inspection (ISI) Program Plan, (Revision 2) for the Wolf Creek Generating Station, to meet the requirements of the 1980 Edition Winter 1981 Addenda, except that the extent of examination for Class 2 piping welds will be determined by the 1974 Edition Summer 1975 Addenda, of Section XI of the ASME Boiler and Pressure Vessel Code. The staff, with technical assistance from its Contractor, Idaho National Engineering Laboratory (INEL), has evaluated the first ten-year Interval Inservice Inspection Program Plan and additional information related to the plan and to the requests for relief from certain ASME Code requirements determined to be impractical to perform at the Wolf Creek Generating Station during the first inspection interval.

#### EVALUATION

The ISI Program Plan has been evaluated for (a) application of the correct Section XI Code edition and addenda, (b) compliance with examination and test requirements of Section XI, (c) acceptability of the examination sample, (d) compliance with commitments made by the licensee prior to plant operation, (e) correctness of the application of system or component examination exclusion criteria, and (f) adequate information in support of requests for relief from impractical Section XI Code requirements. The staff, with technical assistance from INEL, has determined that the licensee's ISI Program Plan reflects compliance with the requirements listed above. The information provided by the licensee in support of requests for relief from impractical requirements has been evaluated and the bases for granting relief from those requirements are documented in the Technical Evaluation Report (TER) attached. We concur with the findings and recommendations contained in the TER. A summary of these reliefs is presented in TABLE 1.

#### CONCLUSION

The staff concludes that the Wolf Creek first ten-year Inservice Inspection Program Plan, Revision 2 with the additional information provided and the specific written reliefs constitute the basis for compliance with 10 CFR 50.55a(g) and Technical Specification 4.0.5 and is therefore acceptable.

Principal Contributors: George Johnson  
Paul W. O'Connor

Dated:

TABLE 1

SUMMARY OF RELIEF REQUESTS

<u>Item No.</u>	<u>Exam. Category</u>	<u>System or Component</u>	<u>Volume or Area to be Examined</u>	<u>Required Method</u>	<u>Licensee Proposed Alternative</u>	<u>Relief Request Status</u>
B1.30	B-A	Reactor Vessel	Flange-to-Vessel Weld	Volumetric	75% of Weld Volume	Granted
B3.90	B-D	Reactor Vessel	Nozzle-to-Vessel Welds: 1-RV-107-121-A 1-RV-107-121-B 1-RV-107-121-C 1-RV-107-121-D	Volumetric	90% of Weld Volume of each weld	Granted
B1.21	B-A	Reactor Vessel	Lower Head-to-Dollar Plate Weld 1-RV-102-151	Volumetric	90% of weld volume	Granted
B1.21	B-A	Reactor Vessel	Lower Head-to-Shell Weld 1-RV-101-141	Volumetric	90% of weld volume	Granted
B1.40	B-A	Reactor Vessel	Closure Head-to-Flange Weld	Surface and Volumetric	100% surface and 94% Volumetric	Granted
B5.40	B-F	Pressurizer	Nozzle-to-Safe-End Welds: 1-TBB03-4-4 1-TBB03-3-A-W 1-TBB03-1-W 1-TBB03-3-B-W 1-TBB03-2-W 1-TBB03-3-C-W	Surface and Volumetric	100% surface and Volumetric to extent practical	Granted



TABLE 1 (cont'd)

SUMMARY OF RELIEF REQUESTS

<u>Item No.</u>	<u>Exam. Category</u>	<u>System or Component</u>	<u>Volume or Area to be Examined</u>	<u>Required Method</u>	<u>Licensee Proposed Alternative</u>	<u>Relief Request Status</u>
B2.11	B-B	Pressurizer	Shell-to-Bottom Head Weld	Volumetric	Volumetric exam to extent practical	Granted
B2.40	B-B	Steam Generator "B"	Tubesheet-to-Channel Head Weld EBB01B-Seam-1-W	Volumetric	Volumetric exam to extent practical	Granted
B9.31	B-J	Piping	Branch Pipe Connection Welds: IPB-01-S302-3 1BB-01-S402-3	Surface and volumetric	100% Surface and volumetric to extent practical	Granted
C1.10	C-A	Steam Generator	Transition Cone-to-Shell Section C Weld 1-EBB01A-6-W	Volumetric	Volumetric to extent practical	Granted
C1.10	C-A	Steam Generator	Shell Section B-to-Transition Cone Weld 1-EBB01A-Seam-5-W	Volumetric	Volumetric to extent practical	Granted
C1.10	C-A	Steam Generator	Stub Barrel-to-Shell Section A Weld 1-EBB01A-Seam-3-W	Volumetric	Volumetric to extent practical	Granted



TABLE 1 (cont'd.)

SUMMARY OF RELIEF REQUESTS

<u>Item No.</u>	<u>Exam. Category</u>	<u>System or Component</u>	<u>Volume or Area to be Examined</u>	<u>Required Method</u>	<u>Licensee Proposed Alternative</u>	<u>Relief Request Status</u>
C1.20	C-A	Steam Generator	Shell Section D-to-Top Head Weld 1-EBB01A-Seam-8-W	Volumetric	Volumetric to extent practical	Granted
C1.30	C-A	Steam Generator	Tubesheet-to-Stub Barrel Weld 1-EBB01A-Seam-2-W	Volumetric	Volumetric to extent practical	Granted
C2.21	C-B	Steam Generator "A"	Feedwater Nozzle-to-Shell Weld EBB01A-11-W	Surface and Volumetric	Volumetric to extent practical	Granted
C5.21	C-F	Main Feedwater	Piping Welds: 1-AE-05-FW302 1-AE-05-FW020 1-AE-04-FW020 1-AE-04-F005 1-AE-04-F033 1-AE-05-F031 1-AE-04-F031	Volumetric and Surface	100% surface and volumetric to extent practical	Granted
C5.11	C-F	Reactor Coolant Pump	Seal Water Injection Line Welds	Surface and Augmented Volumetric (committed to by licensee, see NUREG-0800 Section 3.6.1)	Surface	Granted

TABLE 1 (cont'd.)

SUMMARY OF RELIEF REQUESTS

<u>Item No.</u>	<u>Exam. Category</u>	<u>System or Component</u>	<u>Volume or Area to be Examined</u>	<u>Required Method</u>	<u>Licensee Proposed Alternative</u>	<u>Relief Request Status</u>
	IWF	Piping Supports	Selection of Class 1, 2, & 3 Component Supports	In accordance with IWF-2510 and IWF-2430	Statistical sampling plan with 95/90 criteria for selection of pipe supports	Granted

TECHNICAL EVALUATION REPORT ON THE  
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KANSAS GAS AND ELECTRIC COMPANY,  
WOLF CREEK GENERATING STATION,  
DOCKET NUMBER 50-482

B. W. Brown  
J. D. Mudlin

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Idaho National Engineering Laboratory  
EG&G Idaho, Inc.  
Idaho Falls, Idaho 83415

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## ABSTRACT

This report presents the results of the evaluation of the Wolf Creek Generating Station First 10-Year Interval Inservice Inspection (ISI) Program Plan through Revision 2, submitted December 11, 1985, including the requests for relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI requirements which the Licensee has determined to be impractical. The Wolf Creek Generating Station First 10-Year Interval ISI Program Plan is evaluated in Section 2 of this report. The ISI Program Plan is evaluated for (a) compliance with the appropriate edition/addenda of Section XI, (b) acceptability of examination sample, (c) exclusion criteria, and (d) compliance with ISI-related commitments identified during the Nuclear Regulatory Commission (NRC) review before granting an Operating License. The requests for relief from the ASME Code requirements which the Licensee has determined to be impractical for the first 10-year inspection interval are evaluated in Section 3 of this report.

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Review of ISI for ASME Code Class 1, 2, and 3 Components

## SUMMARY

The Licensee, Kansas Gas and Electric Company, has prepared the Wolf Creek Generating Station First 10-Year Interval Inservice Inspection (ISI) Program Plan, Revision 2, to meet the requirements of the 1980 Edition, Winter 1981 Addenda (80W81) of the ASME Code Section XI except that the extent of examination for Code Class 2 piping welds has been determined by the 1974 Edition through Summer 1975 Addenda (74S75), as permitted by 10 CFR 50.55a(b). The first 10-Year inspection interval began September 3, 1985 and ends September 3, 1995.

The information in the Wolf Creek Generating Station First 10-Year Interval ISI Program Plan, through Revision 2, submitted December 11, 1985, was reviewed, including the requests for relief from the ASME Code Section XI requirements which the Licensee has determined to be impractical. As a result of this review, a Request for Additional Information (RAI) was prepared describing the information and/or clarification required from the Licensee in order to complete the review.

Based on the review of the Wolf Creek Generating Station First 10-Year Interval ISI Program Plan, Revision 2, the Licensee's response to the NRC's RAI, the "Supplemental Weld Examinations for the Refueling Water Storage and Containment Spray Systems at Wolf Creek Generating Station, Unit 1" document, and the recommendations for the granting of relief from the ISI examination requirements that have been determined to be impractical, it has been concluded that the Wolf Creek Generating Station First 10-Year Interval ISI Program Plan, Revision 2, is acceptable and in compliance with 10 CFR 50.55a(g)(4).

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TECHNICAL EVALUATION REPORT ON THE  
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1. INTRODUCTION

Throughout the service life of a water-cooled nuclear power facility, 10 CFR 50.55a(g)(4) (Reference 1) requires that components (including supports) which are classified as American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Class 1, Class 2, and Class 3 meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," (Reference 2) to the extent practical within the limitations of design, geometry, and materials of construction of the components. This section of the regulations also requires that inservice examinations of components and system pressure tests conducted during the initial 120-month inspection interval shall comply with the requirements in the latest edition and addenda of the Code incorporated by reference in 10 CFR 50.55a(b) on the date 12 months prior to the date of issuance of the operating license, subject to the limitations and modifications listed therein. The components (including supports) may meet requirements set forth in subsequent editions and addenda of this Code which are incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein. The Licensee, Kansas Gas and Electric Company, has prepared the Wolf Creek Generating Station First 10-Year Interval Inservice Inspection (ISI) Program Plan, Revision 2, to meet the requirements of the 1980 Edition, Winter 1981 Addenda (80W81) of the ASME Code Section XI except that the extent of examination for Class 2 piping welds has been determined by the 1974 Edition through Summer 1975 Addenda (74S75), as permitted by 10 CFR 50.55a(b). Based on the date of commercial operation, the first 10-year interval began September 3, 1985 and ends September 3, 1995.

As required by 10 CFR 50.55a(g)(5), if the licensee determines that certain



Code examination requirements are impractical and requests relief from them, the licensee shall submit information and justifications to the Nuclear Regulatory Commission (NRC) to support that determination.

Pursuant to 10 CFR 50.55a(g)(6), the Commission will evaluate the licensee's determinations under 10 CFR 50.55a(g)(5) that Code requirements are impractical. The Commission may grant relief and may impose alternative requirements as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

The information in the Wolf Creek Generating Station First 10-Year Interval ISI Program Plan, through Revision 2 (Reference 3), submitted December 11, 1985, was reviewed including the requests for relief from the ASME Code Section XI requirements which the Licensee has determined to be impractical. The initial requests for relief were received in submittals dated December 11, 1985 (Reference 4) and December 13, 1985 (Reference 5). Review was also completed on letters from the Licensee dated January 20, 1986 (Reference 6) and July 10, 1986 (Reference 7) regarding partial exemptions from the ASME Code Section XI requirements for snubber inspection. The review of the ISI Program Plan was performed using the Standard Review Plans of NUREG-0800 (Reference 8), Section 5.2.4, "Reactor Coolant Boundary Inservice Inspections and Testing," Section 5.4.2.2, "Steam Generator Tube Inservice Inspection," and Section 6.6, "Inservice Inspection of Class 2 and 3 Components".

In a letter dated August 27, 1986 (Reference 9), the NRC requested additional information that was required in order to complete the review of the ISI Program Plan. The requested information was provided by the Licensee in the "Response to Request for Information Related to the Inservice Inspection Program Plan" dated October 17, 1986 (Reference 10). As a result of the Licensee's response to the request for additional information and several telephone conference calls with the Licensee and the NRC staff, the Licensee provided further information in a submittal dated February 20, 1987 (Reference 11). In this submittal, the Licensee withdrew

two relief requests (D and E), revised five relief requests (C, F, G, H, and L), and provided a copy of a supplemental examination program for the Refueling Water Storage System, Chemical Volume and Control System, and Containment Spray System.

Request for Relief L was subsequently withdrawn by the Licensee in a letter dated March 17, 1987 (Reference 12) and four new requests for relief were received in a submittal dated March 20, 1987 (Reference 13). The new relief requests resulted from the inservice inspections performed during the first refueling outage at Wolf Creek Generating Station.

The Wolf Creek Generating Station First 10-Year Interval ISI Program Plan is evaluated in Section 2 of this report. The ISI Program Plan is evaluated for (a) compliance with the appropriate edition/addenda of Section XI, (b) acceptability of examination sample, (c) exclusion criteria, and (d) compliance with ISI-related commitments identified during the NRC's review before granting an Operating License.

The requests for relief are evaluated in Section 3 of this report. Unless otherwise stated, references to the Code refer to the ASME Code, Section XI, 1980 Edition including Addenda through Winter 1991. Specific inservice test (IST) programs for pumps and valves are being evaluated in other reports.

## 2. EVALUATION OF INSERVICE INSPECTION PROGRAM PLAN

This evaluation consisted of a review of the applicable program documents to determine whether or not they are in compliance with the Code requirements and any License conditions pertinent to ISI activities. This section describes the submittals reviewed and the results of the review.

### 2.1 Documents Evaluated

Review has been completed on the following information provided by the Licensee:

- (a) Wolf Creek Generating Station First 10-Year Interval ISI Program Plan, Revision 2, submitted December 11, 1985;
- (b) Letter, dated December 11, 1985, containing "Inservice Inspection Relief Requests for Wolf Creek Generating Station";
- (c) Letter, dated December 13, 1985, containing "Inservice Inspection Relief Request for Wolf Creek Generating Station";
- (d) Letter, dated January 20, 1986, "Partial Exemption to ASME Section XI Requirements for Snubber Inspection";
- (e) Letter, dated July 10, 1986, "Clarification on Partial Exemption to ASME Section XI Requirements for Snubber Inspection";
- (f) Letter, dated October 17, 1986, "Response to Request for Information Related to the Inservice Inspection Program Plan";
- (g) Letter, dated February 20, 1987, containing revised and withdrawn relief requests and a document titled "Supplemental Weld Examinations for the Refueling Water Storage and Containment Spray Systems at Wolf Creek Generating Station, Unit 1";



- (h) Letter, dated March 17, 1987, withdrawing Relief Request L for further evaluation by the Licensee; and
- (i) Letter, dated March 20, 1987, submitting four new relief requests resulting from the inservice inspections performed during the first refueling outage at Wolf Creek Generating Station.

## 2.2 Compliance with Code Requirements

### 2.2.1 Compliance with Applicable Code Editions

The Inservice Inspection Program Plan shall be based on the Code editions defined in 10 CFR 50.55a(b). Based on the Operating License date of March 11, 1985, the Code applicable to the first interval ISI program is the 1980 Edition with Addenda through Winter 1981. As stated in Section 1 of this report, the Licensee has prepared the Wolf Creek Generating Station First 10-Year Interval ISI Program Plan, Revision 2, to meet the requirements of the 1980 Edition, Winter 1981 Addenda of the Code except that, as required by 10 CFR 50.55a(b), the extent of examination for Class 2 piping has been determined by the 1974 Edition through Summer 1975 Addenda.

### 2.2.2 Acceptability of the Examination Sample

Inservice volumetric, surface, and visual examinations shall be performed on ASME Code Class 1, 2, and 3 components and their supports using sampling schedules described in Section XI of the ASME Code and 10 CFR 50.55a(b). Sample size and weld selection have been implemented in accordance with the Code and appear to be correct.

### 2.2.3 Exclusion Criteria

The criteria used to exclude components from examination shall be consistent with Paragraphs IWB-1220, IWC-1220, IWD-1220, and 10 CFR 50.55a(b). The exclusion criteria have been applied by the

Licensee in accordance with the Code as discussed in the General Reference Text of the ISI Program Plan (Document No. 83A1692, Rev. 2, Section 3.2, "Exemptions and Exceptions") and appear to be correct.

#### 2.2.4 Augmented Examination Commitments

The Licensee has stated, in the ISI Program Plan, that the following augmented examinations are being implemented during the first 10-year inspection interval:

- (a) The weld selection for the High Pressure Coolant Injection System on the Safety Injection Pump suction lines contain, at a minimum, a 7.5% representative sample of these welds.
- (b) Augmented examinations per NUREG-0800, Section 3.6.1, "Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment."
- (c) Augmented examinations per Regulatory Guide 1.14, "Reactor Coolant Pump Flywheel Integrity" (Reference 14).
- (d) Examinations for the Reactor Pressure Vessel are in compliance with Paragraph 8 (Alternative Method) of Regulatory Guide 1.150, "Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examination" (Reference 15).

In addition, in the February 20, 1987 submittal of "Supplemental Weld Examination for the Refueling Water Storage and Containment Spray Systems at Wolf Creek Generating Station Unit 1", the Licensee committed to include 7.5% of the austenitic stainless steel or high alloy welds for piping in the Refueling Water Storage System, Chemical and Volume Control System, and the Containment Spray System for surface and volumetric examinations during ISI. The welds selected are in piping 4 inches and greater nominal pipe size with nominal wall thicknesses 3/8 inch and greater which had been previously exempted from examination by IWC-1220. ASME Code Case N-408 was used as guidance in establishing the weld selection criteria.

### 2.3 Conclusions

Based on the review of the documents listed above, it is concluded that the Wolf Creek Generating Station First 10-Year Interval ISI Program Plan, Revision 2, is acceptable and in compliance with 10 CFR 50.55a(g)(4). The requests for relief from the ASME Code requirements which the Licensee has determined to be impractical are evaluated in the following sections.



### 3. EVALUATION OF RELIEF REQUESTS

The requests for relief from the ASME Code requirements which the Licensee has determined to be impractical for the first 10-year inspection interval are evaluated in the following sections.

#### 3.1 Class 1 Components

##### 3.1.1 Reactor Pressure Vessel

###### 3.1.1.1 Request for Relief H, Examination Category B-A, Item B1.30, Reactor Pressure Vessel Flange-to-Vessel Weld

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-A, Item B1.30 requires a 100% volumetric examination of the Reactor Pressure Vessel Shell-to-Flange weld as defined by Figure IWB-2500-4.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume of the Flange-to-Vessel Weld #1-RV-101-121.

Licensee's Proposed Alternative Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

Licensee's Basis for Requesting Relief: The parallel scan portion of the volumetric examination can only be performed from the lower side of the weld due to the presence of the flange taper above the weld. Therefore, approximately 25% of the required weld volume will not be examined.

Evaluation: The Licensee's submittal has been reviewed and it has been concluded that, based on the vessel design, an acceptable percentage (approximately 75%) of the Code-required volumetric examination will be performed on the subject weld

and that the Reactor Pressure Vessel would have to be redesigned and refabricated in order to complete the remainder. Based on the limited Code examination of this weld and the full Code examination of other similar welds in the vessel, the integrity of the subject weld will be verified by sampling.

Conclusions: Based on the above evaluation, it is concluded that the limited Section XI volumetric examination, along with the Code-required pressure test, provides an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.

3.1.1.2 Request for Relief I, Examination Category B-D, Item B3.90, Reactor Pressure Vessel Nozzle-to-Vessel Welds

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-D, Item B3.90 requires a 100% volumetric examination of the Reactor Pressure Vessel Nozzle-to-Vessel welds as defined by Figure IWB-2500-7.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume on the following 4 RPV Outlet Nozzle-to-Vessel welds:

WELD NUMBERS

1-RV-107-121-A  
1-RV-107-121-B  
1-RV-107-121-C  
1-RV-107-121-D

Licensee's Proposed Alternative Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.



Licensee's Basis for Requesting Relief: The Licensee states that approximately 10% of the total weld volume for each of the subject nozzles is obstructed by contact between the examination head and the nozzle knuckle extending from the nozzle opening through the plane of the Reactor Pressure Vessel inner diameter.

Evaluation: The Licensee's submittal has been reviewed and it has been concluded that, based on the nozzle design, an acceptable percentage (approximately 90%) of the Code-required volumetric examination will be performed on the subject welds and that these nozzles would have to be redesigned in order to complete the remainder. Based on the limited Code examination of these welds and the full Code examination of other similar welds in the Reactor Pressure Vessel, the integrity of the subject welds will be verified by sampling.

Conclusions: Based on the above evaluation, it is concluded that the limited Section XI volumetric examination, along with the Code-required pressure test, provides an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.

3.1.1.3 Request for Relief J, Examination Category B-A, Item B1.21, Reactor Pressure Vessel Lower Head-to-Dollar Plate Weld

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-A, Item B1.21 requires a 100% volumetric examination of the Reactor Pressure Vessel head welds as defined by Figure IWB-2500-3.

Licensee's Code Relief Request: Relief is requested from



examining 100% of the Code-required volume of lower head-to-dollar plate weld Number 1-RV-102-151.

Licensee's Proposed Alternative Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

Licensee's Basis for Requesting Relief: The Licensee reports that approximately 10% of the required weld volume of the subject lower head-to-dollar plate weld can not be examined due to obstructions presented by the instrumentation nozzles.

Evaluation: The Licensee's submittal has been reviewed and it has been concluded that, based on the design of the Reactor Pressure Vessel's lower head, an acceptable percentage (approximately 90%) of the Code-required volumetric examination will be performed on the subject weld and that the lower head would have to be redesigned in order to complete the remainder. Based on the limited Code examination of this weld and other similar welds in the lower head, the integrity of the subject weld will be verified by sampling.

Conclusions: Based on the above evaluation, it is concluded that the limited Section XI volumetric examination, along with the Code-required pressure test, provides an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.

3.1.1.4 Request for Relief K, Examination Category B-A, Item B1.21, Reactor Pressure Vessel Lower Head-to-Shell Weld

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-A, Item B1.21 requires a 100% volumetric examination

on the Reactor Pressure Vessel head welds as defined by Figure IWB-2500-3.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume of lower head-to-shell weld Number 1-RV-101-141.

Licensee's Proposed Alternative Examination: A 45° longitudinal wave examination will be performed in lieu of the 60° shear wave examination.

Licensee's Basis for Requesting Relief: The perpendicular examination (scanning down) for the 60° ultrasonic shear wave examination cannot be performed because the outside diameter (O.D.) surface taper geometry limits ultrasonic head contact on the subject lower head-to-shell weld. A 45° longitudinal wave examination will be performed in lieu of the 60° shear wave examination. Approximately 10% of the Code-required weld volume will not be examined.

Evaluation: The Licensee's submittal has been reviewed and it has been concluded that, based on the design of the subject lower head-to-shell weld, an acceptable percentage (approximately 90%) of the Code-required volumetric examination will be performed and that the weld would have to be redesigned in order to complete the remainder. Based on the limited Code examination of this weld and the full Code examination of other similar welds, the integrity of the subject weld will be verified by sampling.

Conclusions: Based on the above evaluation, it is concluded that the limited Section XI volumetric examination, along with the alternative 45° longitudinal wave examination and the Code-required pressure test, provides an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or

unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.

3.1.1.5 Request for Relief L, Examination Category B-A, Item B1.22, Reactor Pressure Vessel Lower Head Meridional Welds

NOTE: In the letter dated March 17, 1987, the Licensee withdrew Request for Relief L for further evaluation.

3.1.1.6 Request for Relief O, Examination Category B-A, Item B1.40, Reactor Pressure Vessel Closure Head-to-Flange Weld

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-A, Item B1.40 requires a 100% surface and volumetric examination of the RPV Closure Head-to-Flange weld as defined by Figure IWB-2500-5.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume of Closure Head-to-Flange Weld CH-101-101.

Licensee's Proposed Alternative Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

Licensee's Basis for Requesting Relief: The Licensee reports that three lifting lugs obstruct 42% of the examination volume at the lug locations. In the areas not obstructed by the lugs, 4.3% of the examination volume is obstructed by the head flange. The length of the weld obstructed by the lugs is 4.4%. A total of 6% of the Code-required weld volume cannot be examined. The Licensee also notes that the circumferential scan (parallel to the weld axis), as well as the surface examinations, were unaffected by these obstructions.



Evaluation: The Licensee's submittal has been reviewed and it has been concluded that, based on the vessel design, a significant percentage (approximately 94%) of the Code-required volumetric examination will be performed on the subject weld and that the Reactor Pressure Vessel Closure Head would have to be redesigned and refabricated in order to complete the remainder. Based on the limited Code examination of this weld and other similar welds in the vessel, the integrity of the subject weld will be verified by sampling.

Conclusions: Based on the above evaluation, it is concluded that a significant portion of the Section XI volumetric examination will be completed and that this examination, along with the Code-required surface examination and the VT-2 examination during the pressure test, provides an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.

### 3.1.2 Pressurizer

#### 3.1.2.1 Request for Relief F, Examination Category B-F, Item B5.40, Pressurizer Nozzle-to-Safe-End Welds

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-F, Item B5.40 requires both 100% volumetric and surface examinations on the Pressurizer nozzle-to-safe-end welds as defined by Figure IWB-2500-8.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume of the following six Pressurizer nozzle-to-safe-end welds:

<u>Weld Number</u>	<u>Description</u>	<u>Percent not Examined</u>
1-TBB03-4-W	Relief Nozzle to Safe-end Weld	20% - 60° axial scan 45% - 45° axial scan
1-TBB03-3-A-W	Safety Nozzle to Safe-end Weld	50% - 60° axial scan 35% - 45° axial scan
<u>Weld Number</u>	<u>Description</u>	<u>Percent not Examined</u>
1-TBB03-1-W	Surge Nozzle to Safe-end Weld	15% - 60° axial scan 40% - 45° axial scan
1-TBB03-3-B-W	Safety Nozzle to Safe-end Weld	55% - 60° axial scan 40% - 45° axial scan
1-TBB03-2-W	Spray Nozzle to Safe-end Weld	10% - 60° axial scan 40% - 45° axial scan
1-TBB03-3-C-W	Safety Nozzle to Safe-end Weld	20% - 60° axial scan 40% - 45° axial scan

Licensee's Proposed Alternative Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

Licensee's Basis for Requesting Relief: The Licensee reports that component surface undulations restrict search unit movement and the metal structure of inconel buttering inhibit shear wave transmission. The approximate loss of volumetric examination coverage is listed in the above table.

Evaluation: The Licensee's submittal has been reviewed and it has been concluded that, based on the reported surface condition (undulations) of the subject components and the inhibited shear wave transmission caused by the inconel buttering, a significant percentage of the Code-required volumetric examination will be performed. It is also noted that the percentage of the Code-required volumetric examination which cannot be completed is consistent with that reported during the preservice examinations. However, the Licensee should continue to monitor the development of new or improved examination techniques and, as improvements in these areas are

achieved, incorporate any enhanced techniques in the ISI program plan for the components or welds which received a limited examination.

Conclusions: Based on the above evaluation, it is concluded that the limited Section XI volumetric examination, along with the Code-required surface examination and pressure test, provides an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.

3.1.2.2 Request for Relief N, Examination Category B-B, Item B2.11, Pressurizer Shell-to-Bottom Head Weld

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-B, Item B2.11 requires a 100% volumetric examination of the Pressurizer Shell-to-Head Welds as defined by Figure IWB-2500-1.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume of Pressurizer Shell-to-Bottom Head Weld TBB03-Circum-5-W.

Licensee's Proposed Alternative Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

Licensee's Basis for Requesting Relief: The Licensee reports that, on the bottom head side of the weld, the support skirt to bottom head weld obstructs perpendicular scanning with 2.5% loss of volume in the 45° angle beam scan and 19.5% loss of volume in the 60° angle beam scan. On the shell side, integrally welded lugs and instrumentation nozzles interfere



with perpendicular scanning with 6% loss of volume. The Licensee also reports that the circumferential scan (parallel to weld axis) is unaffected.

Evaluation: The Licensee's submittal has been reviewed and it has been concluded that, based on the Pressurizer design, an acceptable percentage of the Code-required volumetric examination will be performed on the subject weld and that the Pressurizer would have to be redesigned and refabricated in order to complete the remainder. Based on the limited Code examination of this weld and other similar welds in the vessel, the integrity of the subject weld will be verified by sampling.

Conclusions: Based on the above evaluation, it is concluded that the limited Section XI volumetric examination, along with the Code-required pressure test, provides an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.

### 3.1.3 Heat Exchangers and Steam Generators

#### 3.1.3.1 Request for Relief P, Examination Category B-B, Item B2.40, Steam Generator "B" Tubesheet-to-Channel Head Weld

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-B, Item B2.40 requires a 100% volumetric examination of the Steam Generator Tubesheet-to-Channel Head Weld as defined by Figure IWB-2500-6.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume of Steam Generator "B" Tubesheet-to-Channel Head Weld EBB01B-Seam-1-W.

Licensee's Proposed Alternative Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

Licensee's Basis for Requesting Relief: The Licensee states that volumetric examination of the subject weld from the tubesheet side of the weld is 22.4% obstructed by four supports. The 45° angle beam examination is 9.3% obstructed by design of the component and the 60° angle beam examination is obstructed 33.4% by the design of the component. Insufficient base metal is provided by the design to perform complete angle beam examinations. The Licensee has calculated the total loss as 16.7% of the weld and required volume during perpendicular scanning.

Evaluation: The Licensee's submittal has been reviewed and it has been concluded that, based on the vessel design, an acceptable percentage (approximately 83%) of the Code-required volumetric examination will be performed on the subject weld and that the Steam Generator would have to be redesigned and refabricated in order to complete the remainder.

Conclusions: Based on the above evaluation, it is concluded that a significant portion of the Section XI volumetric examination has been completed and that this examination, along with the Code-required pressure test, provides an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.

#### 3.1.4 Piping Pressure Boundary

3.1.4.1 Request for Relief G. Examination Category B-J, Item B9.31,  
Class 1 Branch Pipe Connection Welds

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-J, Item B9.31 requires both 100% volumetric and surface examinations on Class 1 branch connection welds 4 inch and larger nominal pipe size as defined by Figures IWB-2500-9, -10, and -11.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume of the following 2 branch connection welds:

<u>Weld Number</u>	<u>Size</u>	<u>Volume Unexaminable</u>
1BB-01-S302-3	6"	55%
1BB-01-S402-3	14"	10%

Licensee's Proposed Alternative Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

Licensee's Basis for Requesting Relief: The Licensee reports that due to the materials of construction (austenitic) and the design and fabrication geometry of corner type branch connections, it is concluded that meaningful examination by ultrasonic methods is not feasible and that no other practical volumetric method is available. In addition to the Code-required surface examination, VT-2 examinations for leakage will be conducted in accordance with IWA-5240 during the leakage test specified under IWB-5221.

Evaluation: The Licensee's submittal, including the figures showing the design of the corner type branch connections, has been reviewed and it has been concluded that, based on the



design of the subject components and the materials of fabrication, a significant percentage (45% and 90%) of the Code-required volumetric examination will be performed. However, the Licensee should continue to monitor the development of new or improved examination techniques for branch connections and, as improvements in these areas are achieved, incorporate any enhanced techniques in the ISI Program Plan.

Conclusions: Based on the above evaluation, it is concluded that the limited Section XI volumetric examination, along with the Code-required surface examination and the VT-2 examination during the pressure test, provides an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.

The Licensee should continue to monitor the development of new or improved examination techniques. As improvements in these areas are achieved, these enhanced techniques should be made a part of the inservice examination requirements for the components or welds which received a limited examination.

3.1.5 Pump Pressure Boundary (No relief requests)

3.1.6 Valve Pressure Boundary (No relief requests)

3.1.7 General

3.1.7.1 Request for Relief E, Examination Category F-A, Visual (VT-3)  
Examination of Reactor Pressure Vessel Supports

NOTE: NUREG-0881 (Reference 16) states that for ISI the Licensee should incorporate remote visual inspection devices which will allow the Code-required VT-3

examinations to be part of the ISI program. Therefore, in a letter dated February 20, 1987, the Licensee withdrew Request for Relief E and is evaluating the possibility of performing the Code-required VT-3 examination remotely with optical aids.

### 3.2 Class 2 Components

#### 3.2.1 Pressure Vessels

##### 3.2.1.1 Request for Relief B, Examination Category C-A, Items C1.10, C1.20, and C1.30, Pressure Retaining Steam Generator Vessel Welds

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-A, Items C1.10, C1.20, and C1.30 require a 100% volumetric examination of pressure retaining welds in Class 2 pressure vessels as defined by Figures IWC-2500-1 and IWC-2500-2.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume of the following Class 2 Steam Generator Vessel welds:

<u>Weld Number</u>	<u>Description</u>	<u>Basis for Relief</u>
1-EBB01A- SEAM-2-W	Tube Sheet -to- Stub Barrel	Flange obstruction limiting scan length on tube sheet side. Three latches, instrumentation, nozzle and I.D. plate obstructing scan path on stub barrel side. 5% loss of volume coverage at 60° and 45°.
1-EBB01A- SEAM-6-W	Transition Cone -to- Shell Section C	Four instrumentation nozzles, two lugs, gauges and a feedwater nozzle obstructing scan path. 5% loss of volume coverage at 60° scan angle and 10% at a 45° scan angle.
1-EBB01A- SEAM-8-W	Shell Section D -to- Top Head	Loss of transducer contact due to transition section, lug and gauge obstructions. 10% loss of volume coverage.

(continued)		
<u>Weld Number</u>	<u>Description</u>	<u>Basis for Relief</u>
1-EBB01A- SEAM-5-W	Shell Section B -to- Transition Cone	Loss of transducer contact due to transition section and two gauges. 10% loss of volume at 60° and 5% loss of volume at 0°.
1-EBB01A- SEAM-3-W	Stub Barrel -to- Shell Section A	Loss of transducer contact due to transition section and two gauges. 10% loss of volume coverage.

Licensee's Proposed Alternative Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

Licensee's Basis for Requesting Relief: As reported in the above table, lugs, gauges, and nozzles on the steam generators obstruct part of the Class 2 welds requiring Section XI examinations.

Evaluation: The Licensee's submittal has been reviewed and it has been concluded that the volumetric examination of the subject welds to the extent required by the Code is impractical because of the design of the steam generators. A large portion (90 to 95%) of the inservice examination will be performed as required by the Code. Failure to perform a 100% inservice examination of these welds will not significantly affect the assurance of the structural integrity.

Conclusions: Based on the above evaluation, it has been concluded that the limited Section XI ultrasonic examination and the hydrostatic test provide an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.



3.2.1.2 Request for Relief Q, Examination Category C-B, Item C2.21,  
Steam Generator "A" Feedwater Nozzle-to-Shell Weld

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-B, Item C2.21 requires a 100% surface and volumetric examination of Class 2 pressure retaining nozzle welds in vessels as defined by Figure IWC-2500-4.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume of Steam Generator "A" Feedwater Nozzle-to-Shell Weld EBB01A-11-W.

Licensee's Proposed Alternative Examination: None; the Code required volumetric examination will be completed to the maximum extent practical. The Licensee also states that a 0° ultrasonic examination was performed at the time of ISI examination to reduce the chance of missing a reflector parallel to the initial required scan.

Licensee's Basis for Requesting Relief: Because of forging geometry, the examination of the weld and required volume can only be performed from one beam path direction. An area of the examination surface is contoured such that the search unit loses contact with the examination surface. The loss is 2.5% of the weld and required volume in one direction. Weld geometry precludes examination from the opposite direction in its entirety. The Code-required surface examination has been performed.

Evaluation: The Licensee's submittal has been reviewed and it has been concluded that, based on the subject Steam Generator Nozzle design, a reasonable percentage of the Code-required volumetric examination has been performed on the subject weld and the Steam Generator Nozzle would have to be redesigned and refabricated in order to complete the remainder.

Conclusions: Based on the above evaluation, it is concluded that the limited Section XI volumetric examination, along with the Code-required pressure test, provides an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.

### 3.2.2 Piping

#### 3.2.2.1 Request for Relief A, Examination Category C-F, Item C5.21, Pressure Retaining Main Feedwater System Welds

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-F, Item C5.21 requires both 100% volumetric and surface examinations on Class 2 pressure retaining piping welds with greater than 1/2 inch nominal wall thicknesses as defined by Figure IWC-2500-7.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume of each of the following seven welds:

<u>Weld Number</u>	<u>Description</u>	<u>Basis for Relief</u>
1-AE-05-FW302	14" Valves	Valve geometry and sockolet obstruction affects scan path. 5% loss of volume coverage.
1-AE-05-F020	-to-	
1-AE-04-F020	14" Pipes	
1-AE-04-F005		
1-AE-04-F033	4" Elbows	Valve geometry obstructs scan path resulting in loss of transducer contact on the elbow inner radius. 10% loss of volume coverage.
1-AE-05-F031	-to-	
1-AE-04-F031	4" Valves	

Licensee's Proposed Alternative Examination: None; the Code required volumetric examination will be completed to the maximum extent practical.

Licensee's Basis for Requesting Relief: As reported in the above table, the design of the Class 2 Main Feedwater system has welded joints, such as component-to-pipe and fitting-to-component, which physically obstruct all or part of the required Section XI examinations from the fitting or component side of the weld.

Evaluation: The Licensee's submittal has been reviewed and it has been concluded that the volumetric examination of the subject welds, to the extent required by the Code, is impractical because of the design of the subject fittings and/or components. A large portion (90 to 95%) of the inservice examination, as required by the Code, will be performed. Failure to perform a 100% inservice examination of these welds will not significantly affect the assurance of the structural integrity.

Conclusions: Based on the above evaluation, it has been concluded that the limited Section XI ultrasonic examination and the hydrostatic test provide an acceptable level of inservice structural integrity and that compliance with the specific requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, it is recommended that relief be granted as requested.

3.2.2.2 Request for Relief C, Examination Category C-F, Item C5.11, Pressure Retaining Reactor Coolant Pump Seal Water Injection Line Welds

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-F, Item C5.11 requires a 100% surface examination of



Class 2 pressure retaining welds with 1/2 inch or less nominal wall thicknesses as defined by Figure IWC-2500-7.

NOTE: Although the ASME Code Section XI does not require a volumetric examination of these welds, the Licensee committed to perform an augmented volumetric examination per NUREG-0800, Section 3.6.1.

Licensee's Code Relief Request: Relief is requested from performing the augmented volumetric examination of the following small diameter, 1/2 inch or less wall thickness welds:

<u>Pump A, Seal Water Injection Line Welds</u>	
<u>Component I.D.</u>	<u>Component Weld Description</u>
1-BG-09-W686	2" x 1 1/2" Reducer to 1 1/2" Pipe
1-BG-09-FW881	1 1/2" Pipe to Valve
1-BG-09-FW882	Valve to 1 1/2" Pipe
1-BG-09-W779	1 1/2" Pipe to 2" x 1 1/2" Reducer

<u>Pump B, Seal Water Injection Line Welds</u>	
<u>Component I.D.</u>	<u>Component Weld Description</u>
1-BG-09-W814	2" x 1 1/2" Reducer to 1 1/2" Pipe
1-BG-09-FW875	1 1/2" Pipe to Valve
1-BG-09-FW876	Valve to 1 1/2" Pipe
1-BG-09-W696	1 1/2" Pipe to 2" x 1 1/2" Reducer

<u>Pump C, Seal Water Injection Line Welds</u>	
<u>Component I.D.</u>	<u>Component Weld Description</u>
1-BG-09-W806	2" x 1 1/2" Reducer to 1 1/2" Pipe
1-BG-09-FW877	1 1/2" Pipe to Valve
1-BG-09-FW878	Valve to 1 1/2" Pipe
1-BG-09-W807	1 1/2" Pipe to 2" x 1 1/2" Reducer

<u>Pump D, Seal Water Injection Line Welds</u>	
<u>Component I.D.</u>	<u>Component Weld Description</u>
1-BG-09-W790	2" x 1 1/2" Reducer to 1 1/2" Pipe
1-BG-09-FW879	1 1/2" Pipe to Valve
1-BG-09-FW880	Valve to 1 1/2" Pipe
1-BG-09-W859	1 1/2" Pipe to 2" x 1 1/2" Reducer

Licensee's Proposed Alternative Examination: None

Licensee's Basis for Requesting Relief: The Licensee states that a meaningful augmented volumetric examination cannot be performed on the subject small diameter (1 1/2 inches or less) pipe-to-component welds due to a combination of the small pipe diameter and the minimum wall thickness. The Licensee has also stated that the Code-required surface examination (liquid penetrant) will be performed.

Evaluation: The licensee's submittal has been reviewed and it has been concluded that, as the Licensee has stated, the volumetric examination of the subject welds is impractical because of the small pipe diameter and the thin wall. The Code-required surface examination and the hydrostatic test provide an acceptable level of structural integrity. However, the Licensee should continue to monitor the development of new or improved examination techniques for the subject welds and, as improvements in these areas are achieved, incorporate any enhanced techniques in the ISI program plan.

Conclusions: Based on the above evaluation, it is concluded that the Code-required surface examination and the pressure test provide an acceptable level of inservice structural integrity. Therefore, it is recommended that relief from the augmented volumetric examination be granted as requested.

3.2.3 Pumps (No relief requests)

3.2.4 Valves (No relief requests)

3.2.5 General (No relief requests)

### 3.3 Class 3 Components

#### 3.3.1 Piping (No relief requests)

#### 3.3.2 Pumps (No relief requests)

#### 3.3.3 Valves (No relief requests)

#### 3.3.4 General

##### 3.3.4.1 Request for Relief D, Examination Category D-A, Visual (VT-3) Examination of Essential Service Water System Pump Supports

NOTE: NUREG-0881 (Reference 16) states that for ISI the Licensee should incorporate remote visual inspection devices which will allow the Code-required VT-3 examinations to be part of the ISI program. Therefore, in a letter dated February 20, 1987, the Licensee withdrew Request for Relief **D** and is evaluating the possibility of performing the Code-required VT-3 examination remotely with optical aids.

### 3.4 Pressure Tests (No relief requests)

### 3.5 General

#### 3.5.1 Ultrasonic Examination Techniques (No relief requests)

#### 3.5.2 Exempted Components (No relief requests)

#### 3.5.3 Other

##### 3.5.3.1 Request for Relief M, Class 1, 2, and 3, Piping Supports Requiring Examination per Subsection IWF

Code Requirement: Section XI, Article IWF-2510 requires that:  
(a) Component supports selected for examination shall be the supports of those components that are required to be examined



under IWB, IWC, IWD, and IWE during the first inspection interval. (b) For multiple components within a system of similar design, function, and service, the supports of only one of the multiple components are required to be examined.

Article IWF-2430 requires that: (a) When the results of examinations require corrective measures in accordance with the provisions of IWF-3000, the component supports immediately adjacent to those requiring corrective action shall be examined. Also, the examinations shall be extended to include additional supports equal in number and similar in type, design, and function to those initially examined during the inspection. (b) When these additional examinations require corrective measures in accordance with the provisions of IWF-3000, the remaining component supports within the system of the same type, design, and function as in (a) above shall be examined.

Licensee's Code Relief Request: Relief is requested from utilizing Articles IWF-2510 and IWF-2430 for the selection of Class 1, Class 2, and Class 3 supports to be examined for ISI.

Licensee's Proposed Alternative Examination: The licensee proposes a statistical sampling plan with a 95/90 criteria for selection of pipe supports.

Licensee's Basis for Requesting Relief: The Licensee states that the above proposed alternative will provide a 95% confidence that a population containing 10% or more unacceptable assemblies will be detected and that the proposed alternative to the requirements of ASME Section XI, Subsection IWF, provides an acceptable level of quality and safety. In addition, it is reported that the above proposed alternative will reduce overall radiation exposure to plant personnel during the ISI examinations.

Evaluation: 10 CFR 50.55a(a)(3) allows alternatives to the requirements of Section XI, provided the Licensee demonstrates that: (1) The proposed alternatives would provide an acceptable level of quality and safety, or (2) compliance with the specified requirements of Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety.

Section XI, Subsection IWF is based on examination of supports of those non-exempt components that are required to be examined by volumetric, surface, or visual (VT-1 or VT-3) examination methods as required by Subsections IWB, IWC, and IWD. Using the proposed alternative, the selection of piping support assemblies for examination is based on the requirements of sample plans developed to identify generic and isolated component support failures, coupled with an exemption from examination for completely inaccessible supports, and supports for one inch and smaller diameter piping. The proposed statistical sampling plan is based not only on a population that includes all supports required to be examined by Section XI, but all non-exempt supports on components within the Section XI boundaries not required to be examined under IWB, IWC, and IWD.

Therefore, generic component support failures which would be found under examinations as required by Subsection IWF should also be found under the statistical sampling plan proposed by the Licensee. In addition, the statistical performance criteria provides a 95% confidence that populations containing 10% or more unacceptable isolated failures will be detected (95/90 criteria). Article IWF-2510 provides no such determination for isolated failures for supports not required to be examined.

Conclusions: Based on the above evaluation, it is concluded that the Licensee's proposed alternative for the selection of Class 1, Class 2, and Class 3 supports to be examined provides an acceptable level of quality and safety as it meets or exceeds the Code-requirements. Therefore, it is recommended that relief be granted as requested.



#### 4. CONCLUSION

Pursuant to 10 CFR 50.55a(g)(6), it has been determined that certain Section XI required inservice examinations are impractical. In all cases the Licensee has demonstrated that either the proposed alternatives would provide an acceptable level of quality and safety or that compliance with the requirements would result in hardships or unusual difficulties without a compensating increase in the level of quality and safety.

This technical evaluation has not identified any practical method by which the existing Wolf Creek Generating Station can meet all the specific inservice inspection requirements of Section XI of the ASME Code. Requiring compliance with all the exact Section XI required inspections would require redesign of a significant number of plant systems, sufficient replacement components to be obtained, installation of the new components, and a baseline examination of these components. Examples of components that would require redesign to meet the specific inservice examination provisions are: the reactor pressure vessel, the steam generator, and a number of the piping and component support systems. Even after the redesign efforts, complete compliance with the Section XI examination requirements probably could not be achieved. Therefore, it is concluded that the public interest is not served by imposing certain provisions of Section XI of the ASME Code that have been determined to be impractical. Pursuant to 10 CFR 50.55a(g)(6), relief is allowed from these requirements which are impractical to implement.

The development of new or improved examination techniques will continue to be monitored. As improvements in these areas are achieved, the NRC may require that these techniques be incorporated in the next inspection interval ISI program plan examination requirements.

Based on the review of the Wolf Creek Generating Station First 10-Year Interval Inservice Inspection Program Plan, Revision 2, the Licensee's response to the NRC's Request for Additional Information, and the recommendations for the granting of relief from the ISI examination requirements that have been determined to be impractical, it has been

concluded that the Wolf Creek Generating Station First 10-Year Interval Inservice Inspection Program Plan, Revision 2 is acceptable and in compliance with 10 CFR 50.55a(g)(4).

## 5. REFERENCES

1. Code of Federal Regulations, Volume 10, Part 50.
2. American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, Division 1:  
1980 Edition through Winter 1981 Addenda  
1974 Edition through Summer 1975 Addenda
3. "Wolf Creek Generating Station First 10-Year Interval Inservice Inspection Program Plan", Revision 2, submitted December 11, 1985.
4. Letter, G.L. Koester [Kansas Gas and Electric Company (KG&E)] to H.R. Denton (NRC), "Inservice Inspection Relief Requests for Wolf Creek Generating Station," dated December 11, 1985.
5. Letter, G.L. Koester (KG&E) to H.R. Denton (NRC), "Inservice Inspection Relief Request for Wolf Creek Generating Station," dated December 13, 1985.
6. Letter, G.L. Koester (KG&E) to H.R. Denton (NRC), "Partial Exemption to ASME Section XI Requirements for Snubber Inspection," dated January 20, 1986.
7. Letter, G.L. Koester (KG&E) to H.R. Denton (NRC), "Clarification on Partial Exemption to ASME Section XI Requirements for Snubber Inspection," dated July 10, 1986.
8. NUREG-0800, Standard Review Plans, Section 3.6.1, "Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment", Section 5.2.4, "Reactor Coolant Boundary Inservice Inspection and Testing", Section 5.4.2.2, "Steam Generator Tube Inservice Inspection", and Section 6.6, "Inservice Inspection of Class 2 and 3 Components," July 1981.



9. Letter, P.W. O'Connor (NRC) to G.L. Koester (KG&E), "Request for Additional Information on the First 10-Year Interval Inservice Inspection Program Plan," dated August 27, 1986.
10. Letter, G.L. Koester (KG&E) to H.R. Denton (NRC), "Response to Request for Information Related to the Inservice Inspection Program Plan," dated October 17, 1986.
11. Letter, dated February 20, 1987, J.A. Bailey (KG&E) to Document Control (NRC), containing revised and withdrawn relief requests and a copy of "Supplemental Weld Examinations for the Refueling Water Storage and Containment Spray Systems at Wolf Creek Generating Station, Unit 1."
12. Letter, dated March 17, 1987, B.D. Withers (KG&E) to Document Control (NRC), withdrawing Relief Request L for further evaluation by the Licensee.
13. Letter, dated March 20, 1987, B.D. Withers (KG&E) to Document Control (NRC), submitting four new requests for relief as identified during inservice inspection performed during the first refueling outage at Wolf Creek Generating Station.
14. Regulatory Guide 1.14, "Reactor Coolant Pump Flywheel Integrity," Revision 1, dated August 1975.
15. Regulatory Guide 1.150, "Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations", Revision 1, dated February 1983.
16. NUREG-0881, Supplement 05, "Safety Evaluation Report Related to the Operation of Wolf Creek Generating Station, Unit 1," issued March 31, 1985.

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12. ABSTRACT (200 words or less)  This report presents the results of the evaluation of the Wolf Creek Generating Station First 10-Year Interval Inservice Inspection (ISI) Program Plan through Revision 2, submitted December 11, 1985, including the requests for relief from the ASME Code Section XI requirements which the Licensee has determined to be impractical. The Wolf Creek Generating Station First 10-Year Interval ISI Program Plan is evaluated in Section 2 of this report. The ISI Program Plan is evaluated for (a) compliance with the appropriate edition of Section XI, (b) acceptability of examination sample, (c) exclusion criteria, and (d) compliance with ISI related commitments identified during the NRC's review before granting an Operating License. The requests for relief from the ASME Code requirements which the Licensee has determined to be impractical for the first 10-year inspection interval are evaluated in Section 3 of this report.				11b. PERIOD COVERED (Include start and end dates)	
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