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Docket No. 50-305

Mr. C. W. Giesler, Vice President
Nuclear Power
Wisconsin Public Service Corporation
Post Office Box 1200
Green Bay, Wisconsin 54305

Dear Mr. Giesler:

By letter dated April 15, 1977, as revised July 18, 1977, February 9, 1979, May 1, 1981, May 7, 1982 and June 25, 1982, you submitted a proposed inservice inspection program description and request for relief from inspection requirements pursuant to 10 CFR 50.55a(g). The purpose of this letter is to inform you of the results of the staff review of your relief requests and to grant relief in part from the requirements of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (the Code) or impose other requirements, as appropriate.

The review of requests for relief from the inservice inspection requirements has been completed. Based on the results of this review, the staff has determined there are cases in which the requests for relief cannot be granted.

Section 50.55a(g) of 10 CFR Part 50 requires that your program be revised at 120-month intervals with the start of commercial operation being the reference date. The start of the next interval for your facility is May 1984 and your inservice inspection and testing program must be based on the edition and addenda of the Code incorporated by 10 CFR 50.55a(g) 12 months prior to that date. Any changes to your Technical Specifications are required to be submitted at least six months prior to the beginning of a 120-month interval and it is requested that any requests for relief from Code requirements be provided on the same schedule. The staff review of your relief requests for your next interval will be conducted on a schedule based on the program-revision requirements for your facility. Until that time you should follow the inservice inspection program proposed by your letters dated July 18, 1977, February 9, 1979, May 1, 1981, May 7, 1982 and June 25, 1982 modified as described herein and by any further relief granted or additional testing imposed during the remainder of the period. Any relief from Code requirements granted herein expires in May 1984.

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The enclosed Safety Evaluation (Enclosure 1) delineates those items for which relief has been granted and alternate schedules and procedures defined. The staff has determined that where stated the Code requirements are impractical, the granting of this relief is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest considering the burden that could result if they were imposed on your facility.

A copy of the related Notice of Granting of Relief is enclosed.

Sincerely,

Original signed by:
S. A. Varga

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Enclosures:

- 1. Safety Evaluation
- 2. Technical Evaluation Report
- 3. Notice of Granting of Relief

cc w/enclosures:
See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO REQUESTS FOR RELIEF FROM INSERVICE INSPECTION REQUIREMENTS

Wisconsin Public Service Corporation

Kewaunee Nuclear Generating Station

Docket No. 50-305

INTRODUCTION

Technical Specification 4.2 for the Kewaunee Nuclear Power Plant states that inservice examination of ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10 CFR 50.55a(g) except where specific written relief has been granted by the Commission. Certain requirements of later editions and addenda of Section XI are impractical to perform on older plants because of the plants' design, component geometry, and materials of construction. Thus, 10 CFR 50.55a(g)(6)(i) authorizes the Commission to grant relief from those requirements upon making the necessary findings.

By letters dated April 15, 1977, July 18, 1977, February 9, 1979, May 1, 1981, May 7, 1982 and June 25, 1982, Wisconsin Public Service Corporation submitted its inservice inspection program, revisions, or additional information related to requests for relief from certain Code requirements determined to be impractical to perform on the Kewaunee Nuclear Power Plant during the inspection interval. The program is based on the 1974 Edition through Summer 1975 Addenda of Section XI of the ASME Code, and covers the second and third 40 month periods of the first inspection interval from October 1977 to May 1984.

EVALUATION

Requests for relief from the requirements of Section XI which have been determined to be impractical to perform have been reviewed by the Staff's contractor, Science Applications, Inc. The contractor's evaluations of the licensee's requests for relief and his recommendations are presented in the Technical Evaluation Report (TER) attached (ATTACHMENT 1). The staff has reviewed the TER and agrees with the evaluations and recommendations except Item CL.1, Examination Category C-A, examination of the steam generator transition-to-shell weld. A summary of the determinations made by the staff is presented in the following tables:

TABLE 1
CLASS 1 COMPONENTS

IWB-2600 ITEM NO.	IWB-2500 EXAM. CAT.	SYSTEM OR COMPONENT	AREA TO BE EXAMINED	REQUIRED METHOD	LICENSEE PROPOSED ALTERNATIVE EXAM.	RELIEF REQUEST STATUS
B3.3	B-F	Steam Generator	Nozzle-to- Safe End Weld	Volumetric and Surface	Volumetric to extent practical; 100% surface examination	GRANTED
B4.1	B-F	Piping	Safe End- to-Pipe Weld	Volumetric	Volumetric to extent prac- tical and surface exam- ination	GRANTED
B4.5	B-J	Piping	Circumfer- ential and Longitudinal Welds	Volumetric	Volumetric to extent prac- tical and surface exam- ination	GRANTED
B4.6	B-J	Piping	Pipe Branch Connection Welds Exceeding 6 inch diameter	Volumetric	Volumetric to extent prac- tical and surface exam- ination	GRANTED
B4.9	B-K-1	Inte- grally- Welded Supports	Support Welds	Volumetric	Volumetric to extent practi- cal and surface examination	GRANTED
B5.1	B-G-1	Bolting	Reactor Coolant Seal House Bolting	Volumetric	Volumetric Examination During Dis- assembly	GRANTED

TABLE 2
CLASS 2 COMPONENTS

<u>IWC-2600</u> <u>ITEM NO.</u>	<u>IWC-2520</u> <u>EXAM. CAT.</u>	<u>SYSTEM OR</u> <u>COMPONENT</u>	<u>AREA TO BE</u> <u>EXAMINED</u>	<u>REQUIRED</u> <u>METHOD</u>	<u>LICENSEE</u> <u>PROPOSED</u> <u>ALTERNATIVE</u> <u>EXAM.</u>	<u>RELIEF</u> <u>REQUEST</u> <u>STATUS</u>
Cl.1	C-A	Regenera- tive Heat Exchanger	Head-to- Shell Welds; Shell- to-Tube Sheet Welds	Volumetric	Visual During Hydrostatic Test	GRANTED
Cl.2	C-B	Residual Heat Exchanger	Nozzle-to- Vessel Welds	Volumetric	Visual During Hydrostatic Test	GRANTED
Cl.1	C-A	Seal Water Return Filter	Cover Weldment- to-Shell Weld	Volumetric	Surface and Visual	GRANTED
Cl.1	C-A	Reactor Coolant Filter	Cover Weldment- to-Shell Weld	Volumetric	Surface and Visual	GRANTED
Cl.1	C-A	Steam Generator	Transition to Lower Shell Weld	Volumetric	None	NOT GRANTED

TABLE 2
CLASS 2 COMPONENTS

<u>IWC-2600</u> <u>ITEM NO.</u>	<u>IWC-2520</u> <u>EXAM. CAT.</u>	<u>SYSTEM OR</u> <u>COMPONENT</u>	<u>AREA TO BE</u> <u>EXAMINED</u>	<u>REQUIRED</u> <u>METHOD</u>	<u>LICENSEE</u> <u>PROPOSED</u> <u>ALTERNATIVE</u> <u>EXAM.</u>	<u>RELIEF</u> <u>REQUEST</u> <u>STATUS</u>
C2.1	C-F and C-G	Piping	Circum- ferential Butt Welds	Volumetric	Volumetric Examination to extent practical and Surface Exam	GRANTED
C2.3	C-F and C-G	Piping	Pipe Branch Welds	Volumetric	Volumetric to extent practical and Surface Exam	GRANTED

TABLE 3

CLASS 3 COMPONENTS

<u>SYSTEM OR COMPONENT</u>	<u>AREA TO BE EXAMINED</u>	<u>REQUIRED METHOD</u>	<u>LICENSEE PROPOSED ALTERNATIVE</u>	<u>RELIEF REQUEST STATUS</u>
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(No Relief Requests)

TABLE 4
PRESSURE TEST

SYSTEM OR COMPONENT	IWA-5000 IWB-5000 IWC-5000 & IWD-5000 TEST PRESSURE REQUIREMENT	LICENSEE PROPOSED ALTERNATIVE TEST PRESSURE	RELIEF REQUEST STATUS
Class 1 System/ Piping Between Check Valves or Normally Closed Valves	IWB-5200 (1.10 times System Nominal Operating Pressure at 100% Rated Power)	None	NOT GRANTED
Class 2 System/ Unisolatable Systems	IWC-5000 (1.25 times System Design Pressure)	Pressurize System to Class 1 Requirements	GRANTED
Class 3 System/Systems in Continuous Use	IWD-5200 (1.10 times System Design Pressure)	Visual Examination During Normal Operating Pressures	GRANTED

TABLE 5

ULTRASONIC EXAMINATION TECHNIQUE

<u>SYSTEM OR COMPONENT</u>	<u>REQUIREMENT</u>	<u>LICENSEE PROPOSED ALTERNATIVE EXAMINATION METHOD</u>	<u>RELIEF REQUEST STATUS</u>
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(No Relief Requests)

TABLE 6

GENERAL RELIEF REQUESTS

ALL CLASSES/COMPONENTS

<u>SYSTEM/COMPONENT</u>	<u>REQUIREMENT</u>	<u>LICENSEE ALTERNATE</u>	<u>RELIEF REQUEST STATUS</u>
Class 1, 2 & 3 System Repair Procedures	IWA-4000, IWB-4000 IWC-4000, IWD-4000	Repair Procedures to Original Construction Criteria	GRANTED

Based on the review summarized, the staff concludes that relief granted from the examination requirements and alternate methods imposed through this document give reasonable assurance of the piping and component pressure boundary and support structural integrity, that granting relief where the Code requirements are impractical is authorized by law and will not endanger life or property, or the common defense and security, and is otherwise in the public interest considering the burden that could result if they were imposed on the facility.

The staff has determined that where stated the Code requirements are impractical, the granting of this relief is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest considering the burden that could result if they were imposed on your facility.

Environmental Consideration

We have determined that granting relief from specific ASME Section XI Code requirements does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that this is an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the grant of this relief.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because this action does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the action does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: April 19, 1983

Principal Contributor:
G. Johnson

KEWAUNEE NUCLEAR POWER PLANT
INSERVICE INSPECTION PROGRAM
TECHNICAL EVALUATION REPORT

Submitted to:

U.S. Nuclear Regulatory Commission
Contract No. 03-82-096

Science Applications, Inc.
McLean, Virginia 22102

September 2, 1982

~~8209090205~~



Science Applications, Inc.

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TECHNICAL EVALUATION REPORT
KEWAUNEE NUCLEAR POWER PLANT
INSERVICE INSPECTION PROGRAM

INTRODUCTION

The revision to 10 CFR 50.55a, published in February 1976, required that Inservice Inspection (ISI) Programs be updated to meet the requirements (to the extent practical) of the Edition and Addenda of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code* incorporated in the Regulation by reference in paragraph (b). This updating of the programs was required to be done every 40 months to reflect the new requirements of the later editions of Section XI.

As specified in the February 1976 revision, for plants with Operating Licenses issued prior to March 1, 1976, the regulations became effective after September 1, 1976, at the start of the next regular 40-month inspection period. The initial inservice examinations conducted during the first 40-month period were to comply with the requirements in editions of Section XI and addenda in effect no more than six months prior to the date of start of facility commercial operation.

The Regulation recognized that the requirements of the later editions and addenda of the Section XI might not be practical to implement at facilities because of limitations of design, geometry, and materials of construction of components and systems. It therefore permitted determinations of impractical examination or testing requirements to be evaluated. Relief from these requirements could be granted provided health and safety of the public were not endangered giving due consideration to the burden placed on the licensee if the requirements were imposed. This report provides evaluations of the various requests for relief by the licensee, Wisconsin Public Service Corporation (WPSC), of the Kewaunee Nuclear Power Plant. It deals only with inservice examinations of components and with system pressure tests. Inservice tests of pumps and valves (IST programs) are being evaluated separately.

* Hereinafter referred to as Section XI or Code.



The revision to 10 CFR 50.55a, effective November 1, 1979, modified the time interval for updating ISI programs and incorporated by reference a later edition and addenda of Section XI. The updating intervals were extended from 40 months to 120 months to be consistent with intervals as defined in Section XI.

For plants with Operating Licenses issued prior to March 1, 1976, the provisions of the November 1, 1979, revision are effective after September 1, 1976 at the start of the next one-third of the 120-month interval. During the one-third of an interval and throughout the remainder of the interval, inservice examinations shall comply with the latest edition and addenda of Section XI, incorporated by reference in the Regulation, on the date 12 months prior to the start of that one-third of an interval. For Kewaunee, the ISI program, and the relief requests evaluated in this report, cover the second and third 40-month inspection period of the first 10-year interval, i.e., from October 1977 through May 1984. This program was based upon the 1974 Edition of Section XI of the ASME Boiler and Pressure Vessel Code with Addenda through the Summer of 1975.

The November 1979 revision of the Regulation also provides the ISI programs may meet the requirements of subsequent code editions and addenda, incorporated by reference in paragraph (b) and subject to Nuclear Regulatory Commission (NRC) approval. Portions of such editions or addenda may be used, provided that all related requirements of the respective editions or addenda are met. These instances are addressed on a case-by-case basis in the body of this report.

Finally, Section XI of the Code provides for certain components and systems to be exempted from its requirements. In some instances, these exemptions are not acceptable to NRC or are only acceptable with restrictions. As appropriate, these instances are also discussed in this report.

References (1) to (8) listed at the end of this report pertain to information transmittals on the Inservice Inspection Program between the licensee and the Commission. By letters of April 23 and November 30, 1976,^(1,2) the Commission provided general ISI guidance to all licensees. In response to that guidance a submittal of proposed Amendment 25 to the Technical Specifications was made by the licensee on April 15, 1977,⁽³⁾ and was followed by Amendments 25A, 25B and 25C submitted on July 18, 1977, February 9, 1979, and May 1, 1981, respectively.⁽⁴⁻⁶⁾



By letter of March 30, 1982,⁽⁷⁾ the NRC requested additional information to complete this review. This information was furnished by the licensee on May 7, 1982.⁽⁸⁾ Proposed Amendment 25C was revised on June 25, 1982,⁽⁹⁾ to make it consistent with that information.

From these submittals a total of 11 requests for relief from Code requirements or updating to a later Code were identified. These requests are evaluated in the following sections of this report.



I. CLASS 1-COMPONENTS

A. Reactor Vessel

(No relief requests)

B. Pressurizer

(No relief requests)

C. Heat Exchangers and Steam Generator

1. Steam Generator, Nozzle to Safe End Welds, Category B-F, Item B3.3 (see also I.D.1 of this report)

Code Requirement

The volumetric and surface examination shall cover 100% of each circumferential weld of dissimilar metals during each interval.

Code Relief Request

Relief is requested from volumetric examination of 100% of each circumferential weld of dissimilar metals.

Proposed Alternative Examination

A volumetric examination will be performed to the extent practical; the surface examination will be 100% of weld and base metal on the pipe side.

Licensee's Basis for Requesting Relief

Examination of the steam generator primary nozzle to safe end and safe end to pipe weld is limited both by the nozzle geometry and surface condition and by the limited surface preparation of the pipe side of the weld. The surface on the pipe side of the weld, which is a cast elbow, is machined for a distance of approximately 3 in. from the edge of the weld. Ultrasonic examination is limited to this from the edge of the weld. Examinations can be performed on the surface of the weld but are severely limited from the nozzle side by the rough, as-cast surface.

Evaluation

The existing nozzle design and pipe geometry limits the extent of the volumetric examinations that can be performed on these welds to the surface of the weld and the 3 in. of machined area on the pipe side. It may be possible to perform a more



limited volumetric examination from just one side of the weld. Such examination would comply with the 1977 Edition of Section XI (through Summer 1978 Addenda), Article III-4420, which permits the use of a full V-weld examination from just one side and requires a volumetric examination of the weld thickness (Figure IWB-2500-8).

The 1977 Edition of Section XI has been referenced in 10 CFR 50.55a and inservice examinations may meet the requirements of this edition in lieu of those from previous editions with the following provisions:

- (a) Commission approval is required to update to the more recent edition (pursuant to 10 CFR 50.55a(g)(4)(iv));
- (b) When applying the 1977 Edition, all of the addenda through Summer 1978 Addenda must be used;
- (c) Any requirement of the more recent edition which is related to the one(s) under consideration must also be met.

Recommendations

Pursuant to 10 CFR 50.55a(g)(4)(iv), approval should be granted to update to the requirements of the 1977 Edition, Summer 1978 Addenda for Category B-F Items. This approval would permit a full V-weld examination from one side, and a more limited volumetric examination. If this compliance proves impractical, the licensee should submit a request for relief from the updated Code requirements.

References

Reference 6 (Table TS 4.2-1, pp 3 and 8); References 7 and 8.



D. Piping Pressure Boundary

1. Safe End to Pipe Welds, Category B-F, Item B4.1

The request for relief from volumetric and surface examination of nozzle to safe end welds (see I.C.1 of this report) applies here. Therefore, the following is recommended:

Pursuant to 10 CFR 50.55a(g)(4)(iv), approval should be granted to update to the requirements of the 1977 Edition, Summer 1978 Addenda for Category B-F items. This approval would permit a full V-weld examination from one side and a more limited volumetric examination. If this compliance proves impractical, the licensee should submit a request for relief from the updated Code requirements.

2. Circumferential and Longitudinal Pipe Welds, Category B-J, Item B4.5

Code Requirement

The volumetric examinations performed during each inspection interval shall cover all of the area of 25% of the circumferential joints, including the adjoining 1-foot sections of longitudinal joints, as scheduled according to paragraph IWB-2411. Examinations in each interval shall cover a different 25% until all welds have been examined.

Code Relief Request

Relief is requested from volumetric examination of welds where limitation occurs due to piping system or weld geometry. Specific welds requiring relief requests are listed in the licensee's basis for requesting relief below.

Proposed Alternative Examination

In instances where ultrasonic examinations cannot be performed on 100% of the volume of the weld, ultrasonic examination will be performed to the extent practical and surface examinations will be performed to supplement the volumetric examination. In the case of the 90° elbows in the crossover leg, an ultrasonic examination cannot be performed and the surface examination will substitute for volumetric.

Licensee's Basis for Requesting Relief

Limitations may occur for the examination of piping system circumferential butt welds (Category B-J) when the welds occur at geometric discontinuities such as pipe to



vessel welds, pipe to fitting welds or fitting to fitting welds. For pipe to fitting or pipe to vessel nozzle welds, examinations can be performed to the extent required by T-532 of Section V from the weld and pipe surfaces. Examination from the fitting side would be dependent upon the geometric configuration. Where elbows or tees are concerned, examination can be performed from the fitting side except where the intrados of the fitting prevents adequate ultrasonic coupling. No examinations can be performed from the fitting side when it is a valve or a flange. In all cases 100 percent of the weld material can be examined. In instances where welds occur at fitting to fitting, access restrictions as outlined above occur on both sides of the weld. In instances where ultrasonic examinations cannot be performed on 100 percent of the volume of the weld and heat affected zone, surface examinations will be performed to supplement the limited volumetric examination.

Welds in the Kewaunee Plant, Class 1 systems which, due to limitations, would require surface examination are:

- (a) Loop A Accumulator Discharge Line; Weld #5
- (b) Loop A RHR Take-off Line; Weld #11
- (c) Loop A High Head SIS Line; Weld #3
- (d) Loop A Pressurizer Spray Line; Weld #5
- (e) Loop A RTD Return Line; Weld #3
- (f) Loop B Accumulator Discharge Line; Weld #4
- (g) Loop B RHR Take-off Line; Weld #9
- (h) Loop B High Head SIS Line; Weld #3
- (i) Loop B Pressurizer Spray Line; Weld #5
- (j) Loop B RTD Return Line; Weld #2
- (k) Pressurizer Safety Valve PR3A (8010A) Line; Welds #4,7 & 8
- (l) Pressurizer Safety Valve PR3B (8010B) Line; Welds #5,8 & 9
- (m) Pressurizer Relief Line; Welds #9 & 13

In instances where the locations of pipe supports or hangers restrict the access available for the examination of pipe welds as required by IWB-2600, examinations will be performed to the extent practical unless removal of the support is permissible without unduly stressing the system. Welds in the Kewaunee Plant, Class 1 systems which, due to the location of supports, would require surface examination are:

- (a) Loop A Accumulator Discharge Line; Weld #6
- (b) Loop A RHR Take-off Line; Weld #8
- (c) Loop A Pressurizer Spray Line; Weld #9
- (d) Loop B RHR Take-off Line; Weld #7
- (e) Loop B Accumulator Discharge Line; Weld #12
- (f) Loop B RHR Return Line; Welds #6 & 7
- (g) Pressurizer Relief Line; Weld #12

The 90 degree elbows in the crossover leg of the reactor coolant system are fabricated in two halves from austenitic stainless steel castings welded together by the electroslag process.



The structure and nature of the electrosag weld in the cast austenitic 90-degree elbows is such that the material is opaque to ultrasonic transmissions utilizing currently available techniques. Radiography is the only other available technique for volumetric examination. It is not possible to obtain code acceptable radiographs with double wall "shots" on these components which are approximately 38 inches diameter, 3 1/2 inches wall thickness, containing a 2-inch thick splitter plate and having radiation levels of up to 300 mr/hour on contact. Surface examination could be performed on these welds.

Evaluation

(a) Circumferential Welds

For circumferential welds, where access to only one side is available, it may be possible to perform a full V-path ultrasonic examination and comply with the 1977 Edition of Section XI, through Summer 1978 Addenda, Article III-4420. Relief could be granted on that basis. However, the number of inaccessible welds is sufficiently small and random (10% compared with the total number of welds in Category B-J) that none of these welds needs to be included in the 25% sample to be examined during this inspection interval.

For subsequent inspection intervals, the licensee has the option of attempting to comply with Article III-4420 or of examining the same 25% sample, under the provisions of the Summer 1978 Addenda of the 1977 Edition, see Footnote (2) of Category B-J in Table IWB-2500-1. By adopting 10 CFR 50.55a(b)(2)(ii), the Commission was offering an option whereby "operating facilities with ongoing inservice inspection programs would have continuity in the extent and frequency of examinations for pipe welds" (see 44 FR 57913).

Based on these considerations, relief from these requirements is not required at this time for these welds. It is preferable to defer a decision until the next inspection interval after the licensee has determined which of the above options he wishes to exercise.

(b) Longitudinal Welds

For the longitudinal welds in the 90-degree elbows, the cast pieces are fabricated of austenitic stainless steel and a volumetric examination is impractical. A surface examination and visual examination for evidence of leakage are practical and satisfactory for determining the condition of the weld.



Conclusions and Recommendations

(a) Circumferential Welds

Based on the above evaluation, it is concluded that for these welds, relief from volumetric examination is not necessary at this time and should not be granted.

(b) Longitudinal Welds

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examination discussed above will provide necessary added assurance of structural reliability. Therefore, the following is recommended:

Code relief from the volumetric examination should be granted for the longitudinal welds in the 90-degree crossover legs, provided the surface examination and visual examinations for evidence of leakage during pressure tests are conducted, in accordance with IWB-1220(c).

References

Reference 6 (Table TS 4.2.1, pp 4, 9 and 10); and References 7 and 8.



3. Branch Pipe Connection Welds Exceeding 6 Inch Diameter,
Category B-J, Item B4.6

Code Requirement

The volumetric examination performed during each inspection interval shall cover all of the area of 25% of the branch-pipe connection joints.

Code Relief Request

Request relief from full volumetric examination of welds where limitations occur due to piping design or weld geometry.

Proposed Alternative Examination

Volumetric examinations will be performed to the extent practical from the pipe and nozzle adjacent to the weld. Surface examinations will be performed to supplement this limited volumetric examination.

Licensee's Basis for Requesting Relief

The configuration of the reactor coolant branch nozzle connection welds is such that ultrasonic examinations cannot be performed on the surface of the weld.

Evaluation

It may be possible to make a full V-path ultrasonic examination of the weld from the nozzle forging side. This examination complies with the more recent 1977 Code, Summer 1978 Addenda, Article III-4420. The required angle beam calibration is given in Article III-3230.

The 1977 Edition of Section XI has been referenced in 10 CFR 50.55a and inservice examinations may meet the requirements of this edition in lieu of those from previous editions with the following provisions:

- (a) Commission approval is required to update to the more recent edition (pursuant to 10 CFR 50.55a(g)(4)(iv).
- (b) When applying the 1977 Edition, all of the addenda through Summer 1978 Addenda must be used.
- (c) Any requirement of the more recent edition which is related to the one(s) under consideration must also be met.



If a full volumetric examination cannot be made from one side, it could be supplemented by a surface examination. This surface examination should meet the intent of Figure IWB-2500-10 of the Summer 1978 Addenda of the 1977 Edition. (Although Item B9.31 of this code version calls for volumetric examination, no examination volume is shown on this figure.)

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the code requirements are impractical. It is further concluded that the alternative examination discussed above will provide necessary added assurance of structural reliability. Therefore, the following is recommended:

Pursuant to 10 CFR 50.55a(g)(4)(iv), approval should be granted to update to the requirements of the Summer 1978 Addenda to examine Item B4.6 welds using the techniques in Appendix III, specifically Articles III-3230 and III-4420, with the following provision:

If a full volumetric examination cannot be made from one side of the weld, a surface examination to Figure IWB-2500-10 of the Summer 1978 Addenda should also be done.

References

Reference 6 (Table TS 4-2-1, pp 4 and 10); References 7 and 8.



4. Integrally Welded Supports, Category B-K-1, Item B4.9

Code Requirement

The volumetric examination of weld areas shall include essentially 100% of the integrally welded external support attachments. This includes the welds to the pressure retaining boundary and the base metal beneath the weld zone and along the support attachment member for a distance of two support thicknesses.

Code Relief Request

Relief is requested from performing 100% volumetric examination.

Proposed Alternative Examination

Volumetric examination will be performed, to the extent practical, supplemented with surface examination.

Licensee's Basis for Requesting Relief

The piping system integrally welded supports are attached to the pipe by fillet welds. The configuration of such welds is such that examinations cannot be performed to the extent required by IWB-2600 and only the base material of the pipe wall can be examined by ultrasonic techniques. Surface examination will be performed on the integrally welded attachments to supplement the limited volumetric examination.

Evaluation

The geometry of fillet welds for piping supports generally cannot be examined to the extent required by Section XI by ultrasonic examination. Ultrasonic examination of the base metal would detect piping flaws in the heat affected zone, but would provide little or no information on weld penetration. Any penetration flaws would most likely generate at the surface and be detectable by surface examination.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the code requirements are impractical. It is further concluded that the alternative examination discussed above will provide necessary added assurance of



structural reliability. Therefore, the following is recommended:

Relief from 100% volumetric examination should be granted, provided the alternative surface examination is performed.

References

Reference 6 (Table TS 4.2-1, pp 4 and 10).



E. Pump Pressure Boundary

1. Reactor Coolant Pump, Seal House Bolting, Category B-G-1, Item B5.1

Code Requirement

Volumetric examination of bolting 2-in. and larger in diameter shall cover 100% of the bolts, studs, nuts, and threads in base material and flange ligaments between threaded stud holes. The examination schedule shall be according to paragraph IWB-2400.

Bolting may be examined either in place under tension when the connection is disassembled, or when bolting is removed.

Code Relief Request

Relief is requested from examination according to the schedule in paragraph IWB-2400.

Proposed Alternative Examination

Examination will be performed to the extent required by IWB-2600, only when the seal housing is disassembled for maintenance.

Licensee's Basis for Requesting Relief

The reactor coolant pump seal housing bolts are of the socket head type and the configuration is such that ultrasonic examinations as required by IWB-2600 cannot be performed when the bolting is in place.

Evaluation

The design of the seal housing bolts prevents ultrasonic examination, and radiography is an impractical technique to use with the bolting in place. To disassemble a reactor coolant pump at the frequency required to perform the examination would place an undue burden on the licensee without providing a comparable increase in the level of safety of the facility.

The ISI program requires that at least one pump in the group be disassembled and the casing weld be examined once every 10 years. The bolting could be examined at the same time; so as a minimum, the bolting of at least one pump will be examined every 10 years. This limited inspection and the routine monitoring for leakage will provide adequate information about the condition of seal housing bolts.



Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the bolts discussed above, the code requirements are impractical. It is further concluded that the alternative examination discussed above will provide necessary added assurance of structural reliability. Therefore, the following is recommended:

Relief from volumetric examination according to the schedule in paragraph IWB-2400 should be granted, provided that the pump bolting be Code-examined when pumps are disassembled for maintenance, at a minimum of one each 10 years.

References

Reference 6 (Table 4.2-1, pp 5 and 11).



II. CLASS 2 COMPONENT

A. Pressure Vessels

1. Regenerative Heat Exchanger, Head-to-Shell Welds and Shell-to-Tubesheet Welds, Category C-A, Item C1.1

Code Requirement

Volumetric examination of at least 20% of each circumferential weld, uniformly distributed among three areas around the vessel circumference shall be performed over the lifetime of the plant (four intervals with three periods within each interval).

Code Relief Request

Relief is requested from making the volumetric examination.

Proposed Alternative Examination

Visual examination for evidence of leakage will be made.

Licensee's Basis for Requesting Relief

The regenerative heat exchanger is a three pass vessel, having a total of six head-to-shell welds and six shell-to-tubesheet welds. Radiation levels adjacent to this heat exchanger are between 6 and 7 R/hr. The total time required for erection of scaffolding, removal of insulation, cleaning, performing examinations and restoration of insulation could take a total of 3 to 4 hours for the examination of an 1/2-inch long portion of each of 12 welds in this category, such that personnel involved could be subjected to a total accumulated dose of up to 56 man-rem. It is felt that the potential personnel exposure to complete these examinations is excessive particularly when the examination is to establish the continued integrity of a vessel in system in which all the piping welds are exempt from examination by IWC-1220(d). Examination of this vessel for evidence of leakage during the performance of pressure tests will provide the same assurance of continued integrity as for the piping system with which it is associated.

Evaluation

The exposure that would be encountered by working in a 6 to 7 R/hr field to erect scaffolding, remove insulation covering the welds, and clean and perform the examinations makes the examination of one-half inch of weld on each of 12 welds neither cost nor safety effective. Estimates by other licensees show



that examination of an equivalent weld length on just one of the 12 welds would not significantly reduce the man-rem exposure.

As the licensee indicates, all the piping in this system is exempt from weld ISI because it is 4 in. or less. The consequences of failure of one of these heat exchanger welds are no more severe than those from failure of an exempt piping weld.

Visual examination for evidence of leakage during pressure tests is adequate.

Conclusions and Recommendations

Based upon the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examination discussed above will provide necessary added assurance of structural reliability. Therefore, the following is recommended:

Relief from the volumetric examination should be granted, provided that visual examination of welds for evidence of leakage is performed during periodic hydrostatic testing in accordance with IWC-5000.

References

Reference 6 (Table T5 4.2-2, pp 1 and 7); and References 7 and 8.



2. Residual Heat Exchanger (Tube Side), Nozzle-to-Vessel Welds, Category C-B, Item C1.2

Code Requirement

Volumetric examination of 100% of the nozzle-to-vessel attachment weld shall be performed over the lifetime of the plant (four intervals and three periods within each interval).

Code Relief Request

Relief is requested from performing the volumetric examination.

Proposed Alternative Examination

The area will be subject to visual examination for evidence of leakage during system pressure tests.

Licensee's Basis for Requesting Relief

The nozzle-to-vessel welds of the residual heat exchangers are covered by 12-inch diameter, 1-inch thick reinforcement pad. The weld is not accessible for examination by volumetric or surface methods. The area will be subject to visual examination for evidence of leakage during system pressure tests.

Evaluation

The existing component geometry makes the Code-required volumetric examinations impractical because the subject weld is entirely covered by a reinforcement pad. The visual examination for evidence of leakage proposed by the licensee is acceptable. Although the licensee has not invoked high radiation levels as a basis for relief, other licensees of comparable units have reported radiation levels as high as 125 rem/hour on contact with RHR heat exchangers.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the code requirements are impractical. It is further concluded that the alternative examination discussed above will provide necessary added assurance of structural reliability. Therefore, the following is recommended:



Relief from the volumetric examination should be granted, provided the proposed alternative visual examination for evidence of leakage is performed in accordance with IWC-5000.

References

Reference 6 (Table TS 4.2-2, pp 1 and 7).



3. Seal Water Return Filter, Cover Weldment-to Shell Weld and Head-to-Shell Weld, Category C-A, Item C1.1

Code Requirement

Volumetric examination shall be performed on the circumferential welds which are gross structural discontinuities. This includes weld metal and base metal for one plate thickness beyond the edge of the weld joint. The examinations shall cover at least 20% of each circumferential weld, uniformly distributed among three areas around the vessel circumference. The examinations shall be scheduled over the lifetime of the plant (four intervals with three 40-month periods within each interval).

Code Relief Request

Relief is requested from volumetric examination.

Proposed Alternative Examination

Surface and visual examination will be performed.

Licensee's Basis for Requesting Relief

The thickness of the materials utilized for the construction of this component (0.165 to 0.185 in.) is such that meaningful results could not be expected with ultrasonic examination as required by IWC-2600. Surface and visual examination of these welds will be performed as an alternative method.

Evaluation

The material used for construction of this component is too thin for a meaningful ultrasonic examination. This is recognized in the 1977 Code, Summer 1978 Addenda, where in certain categories (i.e., C-B and C-F) only surface examination is required for anything less than 1/2-in. The proposed surface and visual examination is an acceptable alternative.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examination discussed above will provide necessary added assurance of structural reliability. Therefore, the following is recommended:

Relief from a volumetric examination should be granted, provided the proposed surface and visual examination are performed.

References

Reference 6 (Table TS 4.2-2, pp 2 and 8).



4. Reactor Coolant Filter, Cover Weldment-to-Shell Weld and Head-to-Shell Weld, Category C-A, Item C1.1

Except for the component involved, this relief request is the same as for Item C1.1 welds of the Seal Water Return Filters (see II.A.3 of this report). Therefore, the following is recommended:

Code relief from the volumetric examination of these welds should be granted, provided the proposed surface and visual examinations are performed.

5. Steam Generator, Transition to Lower Shell Weld, Category C-A, Item C1.1

Code Requirement

The volumetric examinations shall cover at least 20% of each circumferential weld, uniformly distributed among three areas around the vessel circumference. The examinations shall be performed over the lifetime of the plant (four intervals with three periods within each interval).

Code Relief Request

Relief is requested from making the volumetric examination.

Proposed Alternative Examination

None.

Licensee's Basis for Requesting Relief

The Steam Generator Transition cone to lower shell weld on Steam Generator 1B is completely inaccessible from either the top or bottom because of the Anker-Holth Snubber support ring that completely covers the weld area. The weld is not accessible for examination by volumetric, surface, or visual methods.

Evaluation

The Anker-Holth Snubber support ring completely hides the weld making it inaccessible for volumetric, surface, or visual examination. It is possible to search for evidence of leakage from the hidden weld during vessel pressure tests and this should be done.



Conclusions and Recommendations

Based upon the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examination discussed above will provide necessary added assurance of structural reliability. Therefore, the following is recommended:

Relief from the volumetric examination should be granted, provided that visual examination for evidence of leakage is performed during periodic hydrostatic testing in accordance with IWC-5000.

References

Reference 9.



B. Piping

1. Circumferential Butt Welds, Categories C-F and C-G, Item C2.1

Code Requirement

Categories C-F and C-G require the 100% volumetric examination (including weld metal and base metal for one-wall thickness) of those welds selected for inspection as outlined in IWC-2520. This examination shall be scheduled over the lifetime of the plant (four intervals with three periods within each interval).

Code Relief Request

Relief is requested from performing 100% of the volumetric examination. Specific welds requiring relief are given below in the licensee's basis for requesting relief.

Proposed Alternative Examination

In instances where ultrasonic examinations cannot be performed on one hundred percent of the volume of the weld and heat-affected zone, surface examinations would be performed to supplement the limited volumetric examination.

Licensee's Basis for Requesting Relief

Examination of Class 2 piping system welds is limited to those occurring at geometric discontinuities such that some limitations may be expected at all locations. For pipe to fitting or pipe to vessel nozzle welds, examinations can be performed to the extent required by T-532 of Section V from the weld and pipe surfaces. Examination from the fitting side would be dependent upon the geometric configuration. Where elbows or tees are concerned, examination can be performed from the fitting side except where the intrados of the fitting prevents adequate ultrasonic coupling. No examinations can be performed from the fitting side when it is a valve or a flange. In all cases 100 percent of the weld material can be examined. In instances where welds occur at fitting to fitting, access restrictions as outlined above occur on both sides of the weld. In instances where ultrasonic examinations cannot be performed on 100 percent of the volume of the weld and heat affected zone surface examinations will be performed to supplement the limited volumetric examination.

Preservice examinations were not conducted on the welds in Class 2 systems in the Kewaunee Plant and the following listing of welds are those where it is expected that supplemental surface examinations would be required.

- (a) Loop A Feedwater, ISO WPS2-2101 Weld #19
- (b) Loop B Feedwater, ISO WPS2-2201 Welds #18 & 19
- (c) RHR System, ISO WPS2-2520, Welds #2, 22, 28, 29, 56, 57 and 58
- (d) RHR System, ISO WPS2-2521, Welds #2, 5 and 11
- (e) RHR/Low head SIS System, ISO WPS2-2522, Weld #23
- (f) RHR System, ISO WPS2-2530, Welds #3, 20 and 32
- (g) RHR System, ISO WPS2-2531, Welds #3, 19, 34, 35, 42 and 48
- (h) Low Head SIS System, ISO WPS2-2540, Weld #12
- (i) Low Head SIS System, ISO WPS2-2541, Weld #16
- (j) Low Head SIS System, ISO WPS2-2542, Weld #31

Additionally sections of the Loop B mainsteam and feedwater systems are encapsulated for pipe whip restraint and welds contained in these sections are inaccessible for examination. Specific welds are:

- (a) Loop B Mainsteam, Welds #7, 8, 9 and 10
- (b) Loop B Feedwater, Welds #1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 13 and 14

The Code does not require that all welds in multiple streams be examined and consequently not all the welds listed above will be included in the inspection program during the lifetime of the plant.

Evaluation

(a) Welds Occurring at Geometric Discontinuities

The licensee is committing to make a full volumetric examination from the pipe side of all accessible Item C2.1 piping welds with geometric discontinuities. The licensee's proposal to supplement the volumetric examination (where it cannot be performed on 100% of weld volume and HAZ) is consistent with the intent of later versions of Section XI; for example, the 1977 Edition through Summer 1978 Addenda. It is therefore appropriate to grant to the licensee approval to update to the examination requirements and methods for Item C2.1 welds to the Summer 1978 Addenda where they become Item C5.10 or C5.20 depending upon pipe thickness. This position is consistent with that taken on similar relief requests by other licensees.

In Figure IWC-2520-7 of the Summer 1978 Addenda, the required examination volume CDEF covers only the inner third of the weld thickness but extends beyond the weld width on both sides. The required surface examination area (A-B) extends 1/2-in. to either side of the weld crown width. The licensee should meet the intent of these examination requirements to the extent practical. If the licensee chooses to make a full volumetric examination (and no surface examination) it should cover the cross section bounded by ABDEFC in Figure IWC-2520-7.



The 1977 Edition of Section XI has been referenced in 10 CFR 50.55a and inservice examinations may meet the requirements of this edition in lieu of those from previous editions with the following provisions:

- (a) Commission approval is required to update to the more recent edition (pursuant to 10 CFR 50.55a(g)(4)(iv));
- (b) When applying the 1977 Edition, all of the addenda through Summer 1978 Addenda must be used;
- (c) Any requirement of the more recent edition which is related to the one(s) under consideration must also be met.

(b) Welds Inaccessible Because of Pipe Whip Constraints

Some of the Loop B mainsteam and feedwater welds are inaccessible due to pipe whip restraints. The licensee is correct in stating that the 1974 Edition (Summer 1975 Addenda) does not require all Item C2.1 welds with structural discontinuities to be examined. Only 50% of Category C-G welds (systems circulating other than reactor coolant) need to be examined. Under this interpretation, the Loop B inaccessible welds need not be examined. Visual examination for evidence of leakage at the encapsulated pipe sections should be done during system pressure tests.

Conclusions and Recommendations

(a) Welds Occurring at Geometric Discontinuities

Pursuant to 10 CFR 50.55a(g)(4)(iv), approval should be granted to update to the examination requirements and methods of the Summer 1978 Addenda for C5.10 and C5.20 items. This approval would permit surface examination to be substituted for volumetric examination for Class 2 piping welds less than 1/2-inch thick. It would accommodate the licensee's request to supplement the volumetric examination with a surface examination in those instances where a full volumetric examination is impractical. A full volumetric examination should be interpreted to cover the cross section bounded by ABDEFC in Figure IWC-2520-7 of the Summer 1978 Addenda.

(b) Welds Inaccessible Because of Pipe Whip Constraints

Based on the above evaluation, it is concluded that for these welds, the Code requirements are impractical. It is further concluded that the alternative examination discussed above will provide necessary added assurance of structural reliability. Therefore, the following is recommended:

Code relief from the volumetric or surface examinations should be granted for the Loop B Mainsteam and Feedwater welds that are inaccessible due to pipe whip constraints, provided



that visual examination for evidence of leakage at the encapsulated pipe sections is performed during system hydrostatic pressure tests done in accordance with IWC-5000.

References

Reference 6 (Table TS 4.2-2, pp 4 and 9).



2. Branch Pipe-to-Pipe Welds, Category C-F and C-G, Item C2.3

Code Requirement

Categories C-F and C-G require the 100% volumetric examination (including weld metal and base metal for one-wall thickness) for those branch-to-branch welds selected for inspection in IWC-2520. This inspection shall be scheduled over the lifetime of the plant (four intervals with three periods within each interval).

Code Relief Request

Request relief from performing the 100% volumetric examination of the branch-pipe-to-pipe welds selected for inspection in IWC-2520.

Proposed Alternative Examination

Examination will be performed to the extent practical from the pipe and nozzle surfaces adjacent to the weld. Surface examination of the weld will be performed to supplement the volumetric examination.

Licensee's Basis for Requesting Relief

Where ultrasonic examinations cannot be performed on the surface of branch-pipe-to-pipe welds, examinations will be performed to the extent practical from the pipe and nozzle surfaces adjacent to the weld. Surface examination of the weld will be performed to supplement the volumetric examination.

Evaluation

For this request, the licensee has two approaches. First, where access to the weld is limited to one side, it may be possible to make a full V-path ultrasonic examination from that one side. This examination complies with the more recent 1977 Code, Summer 1978 Addenda, Article III-4420. The required angle beam calibration is given in Article III-3230. The licensee has proposed surface examination to supplement the limited volumetric examination. This surface examination should meet the intent of Figure IWC-2520-9 of the 1977 Edition, Summer 1978 Addenda.

The proposed examinations are more than adequate as evidenced by the Summer 1978 Addenda, which no longer require a volumetric examination for piping branch connections (Item C5.30). The dropping of the volumetric examination in the newer version of the Code opens the second approach to the licensee. Under the 1977 Edition, Summer 1978 Addenda, the licensee could perform a surface examination only, and the



examination requirements are shown in Figures IWC-2529-9 and -7 for circumferential (C5.31) and longitudinal (C5.32), respectively. Either approach is acceptable.

The 1977 Edition of Section XI has been referenced in 10 CFR 50.55a and inservice examinations may meet the requirements of this edition in lieu of those from previous editions with the following provisions:

- (a) Commission approval is required to update to the more recent edition (10 CFR 50.55a(g)(4)(iv));
- (b) When applying the 1977 Edition, all of the addenda through Summer 1978 Addenda must be used;
- (c) Any requirement of the more recent edition which is related to the one(s) under consideration must also be met.

Recommendations

Pursuant to 10 CFR 50.55a(g)(4)(iv), approval should be granted to update to the examination requirements and methods of the 1977 Edition, Summer 1978 Addenda, for C5.30 items. This approval would allow a surface examination to either supplement the limited volumetric examination or to be substituted for the volumetric examination.

References

Reference 6 (Table TS 4.2-2, pp 4 and 9).

C. Pump

No relief requests.

D. Valves

No relief requests.

III. CLASS 3 COMPONENTS

No relief requests.



IV. PRESSURE TESTS

A. General

No relief requests.

B. Class 1 System Pressure Tests

1. Piping Between Two Check Valves or Two Normally Closed Valves

Code Requirement

The pressure retaining components shall be subjected to a hydrostatic test at 1.10 times the system operating pressure at least once toward the end of each inspection interval and a leakage test at operating pressure following each outage.

Code Relief Request

Relief is requested from the pressure testing requirements for piping between two check valves or two normally closed valves. The portions of systems affected by this limitation are:

- (1) Cold leg injection from accumulators between check valves SI22 A and B (8840A and B) and SI21 A and B (8841A and B) and test line to valves SI201A (8824A) and SI201B (8825B) and RHR return line valve RHR-11 (8703).
- (2) Cold leg high head injection between check valves SI 13 A and B (8842A and B) and SI 12 A and B (SI 118-1 and 118-3).
- (3) Reactor Vessel injection between check valves SI 304 A and B (8844A and B) and SI 303 A and B (8843A and B) and SI 16 A and B (SI 118-2 and 118-4).

Licensee's Basis for Requesting Relief

Requirements for the visual examination of Class 1 systems and components for evidence of leakage during the performance of a system pressure test following each refueling are identified by IWB-5200. Exception is taken to the implementation of these requirements on those portions of Class I systems which are contained between two check valves or where pressure applied to the reactor coolant system will be retained at the first valve in the line.



Evaluation

The licensee has not provided sufficient justification to establish that these pressure testing requirements are impractical. In the case of two normally closed valves in series, it should be possible to open the first valve by bypassing any interlocks and to pressurize the line to the second valve. In the case of two check valves in series, one or more options exist:

- (a) pressurize in the direction of normal flow (such as with charging pumps) at the same time as the RCS hydrostatic test,
- (b) improvise a test connection between the two valves,
or
- (c) remove the internals of one check valve.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that there is not presently enough justification for declaring the Code requirements impractical. Therefore, the following is recommended:

- (a) Relief should not be granted at this time from the system hydrostatic pressure tests.
- (b) If relief is still desired, the licensee should provide additional specific justification why the options discussed in the above evaluation are not practical.

References

Reference 6 (TS 4.2-8 and 4.2-9).

C. Glass 2 System Pressure Tests

1. Systems that Cannot Be Isolated from Class 1 Systems

Code Requirement

The pressure retaining components shall be subjected to a hydrostatic test at 1.25 times the system design pressure at 100°F at least once toward the end of each inspection interval.

Code Relief Request

Relief is requested from system pressure testing requirements of Class 2 piping that cannot be isolated from Class 1 piping.

Exception is taken to the performance of the hydrostatic test requirements as required by Article IWC-2412(a) on those portions of the Class 2 systems identified below:

- (1) R. C. pump seal bypass line from the orifice to CVC250 (AOV 8145).
- (2) R. C. pump seal leak off line to manually operated valves CVC 207 A and B (8148A and B).
- (3) R. C. pump seal injection line from check valve CVC205 A and B (CS 100-1 and 2) to manually operated valves CVC204 A and B (CS 7-1 and 2).
- (4) Charging line control valve by-pass line from check valve CVC 14 (CS 102-5) to manually operated valve CVC 13 (CS 101-24).
- (5) Letdown line from valve LD3 (LCV 428) to orifice outlet valves LD4 A and B (8140 A and B) and LD4C (8141).
- (6) Pressurizer steam space sampling line from valve RC402 (9999A) to RC403 (SS13-5), pressurizer liquid space sampling line from valve RC412 (9999B) to RC413 (SS13-6) and loop sampling line from valve RC422 (9999C) to valve RC423 (SS13-7).

Proposed Alternative Examination

Visual examination for evidence of leakage will be conducted on these portions of the systems at the system nominal operating pressure in accordance with the requirements of IWB-5220 for the adjoining Class 1 system.

Licensee's Basis for Requesting Relief

Subsections IWB and IWC contain differing requirements for the hydrostatic testing of Class 1 and Class 2 systems and components. The implementation of these requirements is impractical when the only means of pressurizing the Class 2 system is through the Class 1 system or when the boundary between the two systems is a check valve arranged for flow from Class 2 to the Class 1 system.

The potential for inadvertent overpressurization of the reactor coolant system causes additional concerns on the advisability of pressurizing Class 2 systems to considerably higher pressures than the adjacent Class 1 system and relief is requested from implementing the hydrostatic test requirements of IWC-2412(a) on the CVCS system where such potential exists. The chemical and volume control charging, seal injection and letdown systems are in continuous operation during normal plant operation and are continuously monitored to ensure continued integrity and performance.

Evaluation

The portions of the Class 2 identified by the licensee either cannot be isolated from the Class 1 systems or can only be pressurized through the Class 1 systems. The licensee has agreed to conduct visual examinations for evidence of leakage on these portions of the above systems at the system's nominal operating pressure in accordance with the requirements of IWB-5222, for the adjoining Class 1 system.

The alternative testing program proposed by the licensee is acceptable.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the portions of Class 2 systems discussed above, the Code requirements are impractical. It is further concluded that the alternative examination discussed above will provide necessary added assurance of structural reliability. Therefore, the following is recommended:

Relief should be granted from the requirements of Article IWC-2412(a) for Class 2 piping (listed above) that cannot be isolated from Class 1 piping, provided the requirements of IWB-5220 are substituted.

References

Reference 6 (TS 4.2-9 and 4.2-10).



D. Class 3 System Pressure Tests

1. Systems in Continuous Use

Code Requirement

- (a) The system test pressure shall be at least 1.10 times the system design pressure.
- (b) In the case of storage tanks, the nominal hydrostatic pressure developed with the tank filled to its design capacity shall be acceptable as the system test pressure.
- (c) Open-ended portions of a system (e.g., suction line from a storage tank) extending to the first shutoff valve may be exempted from the test requirements of IWD-5200.

Code Relief Request

Request relief from system pressure test requirements for Class 3 system where the system is in continuous use.

Proposed Alternative Examination

Visual examination of these systems will be performed at normal operating pressures to verify leak-tightness.

Licensee's Basis for Requesting Relief

The examination requirements for Class 3 systems and components are in accordance with IWD-2410(c) which specifies that 100 percent of the components be examined as required by IWA-5240 and IWD-2600 either during normal operation or during system inservice testing. An additional requirement of IWD-2410(b) is for the examination of Class 3 systems and components for evidence of leakage during the performance of a system pressure test in accordance with IWD-5000. The code does not stipulate that certain amounts of these examination requirements be completed within each 40-month period such that the system pressure test requirements may be deferred until the end of the ten year inspection interval. However, it should be noted, that these system pressure tests when required are impractical in those systems, such as component cooling, service water, spent fuel pit cooling, and boric acid transfer and recirculation, which are in continuous operation during all modes of plant operation. The continuous functional operation serves to demonstrate the structural and leak-tight integrity of these systems. Visual examinations of these systems will be performed at normal operation pressures to verify leak-tightness.



Evaluation

Subarticle IWD-5200 which provided the above Code requirement in the 1974 Edition, Summer 1975 Addenda, was significantly expanded in subsequent versions of Section XI. In the Summer 1978 Addenda of the 1977 Edition, Paragraph IWD-5210, that subarticle required that pressure-retaining components within the boundaries of each Class 3 system undergo various pressure tests, including a system hydrostatic test. For pressure testing, Class 3 systems are divided into three examination categories, specified in Table IWD-2500-1. These categories involve supporting one of the following functions: reactor shutdown, emergency core cooling, containment heat removal, atmosphere cleanup, reactor residual heat removal, and residual heat removal from spent fuel storage pool. All the systems cited in the licensee's basis for requesting relief fall into one of the three categories.

The 1977 Edition of Section XI has been referenced in 10 CFR 50.55a and inservice examinations may meet the requirements of this edition in lieu of those from previous editions with the following provisions:

- (a) Commission approval is required to update to the more recent edition (pursuant to 10 CFR 50.55a(g)(4)(iv));
- (b) When applying the 1977 Edition, all of the addenda through Summer 1978 Addenda must be used;
- (c) Any requirement of the more recent edition which is related to the one(s) under consideration must also be met.

In view of the detailed requirements in the Summer 1978 Addenda, it is not appropriate to grant the blanket code relief requested by the licensee. Instead, the requirements of Subarticle IWD-5200 in the Summer 1978 Addenda can be applied. These requirements, while more specific than those in the Summer 1975 Addenda do provide some relief; for example, the hydrostatic test pressure is lower. If the licensee finds specific technical justification for not being able to comply with any part of these requirements, relief requests for individual systems could be submitted.

Conclusions and Recommendations

Based upon the above evaluation, it is concluded that there is not enough justification for granting blanket relief from Code requirements. Therefore, the following is recommended:

- (a) Relief should not be granted from the system pressure test requirements for Class 3 systems in continuous use.



- (b) The licensee should update to the total requirements of Subarticle IWD-5200 in the 1977 Edition, Summer 1978 Addenda, pursuant to 10 CFR 50.55a(g)(4)(iv).
- (c) If any of the updated Code requirements are determined to be impractical, the licensee should submit specific relief requests for individual systems.

References

Reference 3, p 5; References 4, 5 and 7.



GENERAL -

A. Ultrasonic Examination Techniques

No relief requests.

B. Exempted Components

No exemptions listed.

C. Other

1. Repair Procedures

Code Requirement

IWA-4000, IWB-4000, IWC-4000, and IWD-4000, Repair Procedures.

Code Relief Request

Relief is requested from Code repair procedures.

Proposed Alternative Examination

The actual repair procedures will be in accordance with the original construction criteria.

Licensee's Position

The licensee originally stated the following in the Reference 6 document:

Articles IWC-4000 and IWD-4000 entitled, "Repair Procedures," state that the rules of IWB-4000 shall apply. It is considered that the repair procedures outlined in IWB-4000 are inappropriate for the Class 2 and 3 components in this program and the rules of IWA-4000 will be applied.

In response to a request for information (Reference 8), the licensee made the following statement:

WPS will comply with IWA-4000, IWB-4000, IWC-4000, and IWD-4000, as applicable, for repairs except for the following. When a defect has been identified and is in need of repair, the actual repair procedures will be in accordance with original construction criteria.



Evaluation

These statements are understood to mean that the licensee will comply with the Code, other than having the actual repair procedures in accordance with the original construction criteria.

Conclusions and Recommendations

Based upon the above evaluation, it is concluded that the licensee will comply with the Code, other than having the actual repair procedures in accordance with the original construction criteria. It is recommended that the licensee incorporate this into the ISI program.

References

Reference 6 (TS 4.2-8); and Reference 8.



REFERENCES

1. R. A. Purple (NRC) to E. W. James (WPSC), Kewaunee Nuclear Power Plant, Docket #50-305, April 23, 1976.
2. A. Schwencer (NRC) to E. W. James (WPSC), Kewaunee Plant, November 30, 1976.
3. E. W. James (WPSC) to Director, Office of Nuclear Regulatory Commission (NRC), Docket 50-305, Operating License DPR-43, April 15, 1977.
4. E. W. James (WPSC) to Director, Office of Nuclear Regulatory Commission (NRC), Docket 50-305, Operating License DPR-43, July 18, 1977.
5. E. W. James (WPSC) to A. Schwencer (NRC), Docket 50-305, Operating License DPR-43, Proposed Technical Specification Amendment No. 25 B, February 9, 1979.
6. E. R. Mathews (WPSC) to A. Schwencer (NRC), Docket 50-305, Operating License DPR-43, Proposed Technical Specification Amendment No. 25C, May 1, 1981.
7. S. A. Varga (NRC) to E. R. Mathews (WPSC), 10 CFR 50.55 (a) Inservice Inspection Program, March 30, 1982.
8. E. R. Mathews (WPSC) to S. A. Varga (NRC), Docket 50-305 Operating License DPR-43, Kewaunee Nuclear Power Plant, Inservice Inspection Program, May 7, 1982.
9. C. W. Giesler (WPSC) to H. R. Denton (NRC), Inservice Inspection Program, June 25, 1982.



UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-305WISCONSIN PUBLIC SERVICE CORPORATIONWISCONSIN POWER AND LIGHT COMPANYMADISON GAS AND ELECTRIC COMPANYNOTICE OF GRANTING OF RELIEF FROM ASME CODE
REQUIREMENTS

The U. S. Nuclear Regulatory Commission (the Commission) has granted relief from certain requirements of the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the Wisconsin Public Service Corporation, the Wisconsin Power and Light Company and the Madison Gas and Electric Company, which revised the inservice inspection program for the Kewaunee Nuclear Power Station, located in Kewaunee, Wisconsin. The ASME Code requirements are incorporated by reference into the Commission's Rules and Regulations in 10 CFR Part 50. The relief is effective as of April 19, 1983.

This action provides relief from performing volumetric examinations of the welds on certain class 1 components, class 2 components, certain pressure tests and certain repair procedures. Alternate examination tests and repair procedures have been proposed and accepted.

The request for relief complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the letter granting relief and accompanying Safety Evaluation.

The Commission has determined that the granting of this relief will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with this action.

For further details with respect to this action, see (1) the letters from Wisconsin Public Service Corporation dated April 15, 1977, July 18, 1977, February 9, 1979, May 1, 1981, May 7, 1982 and June 25, 1982, (2) the letter to Wisconsin Public Service Corporation dated April 19, 1983, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the Kewaunee Public Library, 822 Juneau Street, Kewaunee, Wisconsin 54216. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 19th day of April, 1983.

FOR THE NUCLEAR REGULATORY COMMISSION


Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing