

CATEGORY 1

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 MECREDY,R.C. Rochester Gas & Electric Corp.
 RECIP.NAME RECIPIENT AFFILIATION
 VISSING,G.S.

*See
Reports*

SUBJECT: Requests approval for use of relief request number 35 re use of ASME Section XI Code,1995 Edition,1996 Addenda.Code will be used to develop plant fourth 10-year interval ISI program on class 1,2 & 3 components.

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ROBERT C. MECREDY
Vice President
Nuclear Operations

August 26, 1999

U.S. Nuclear Regulatory Commission
Document Control Desk
Attn: Guy S. Vissing
Project Directorate I
Washington, D.C. 20555

Subject: Inservice Inspection Program ASME Section XI Required
Examinations
Fourth 10- Year Interval
Request for relief Regarding Request No. 35
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Vissing:

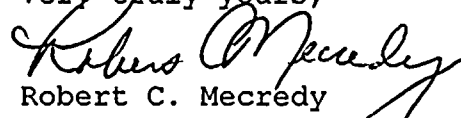
The purpose of this letter is to seek approval for the use of Relief Request number 35 concerning the use of ASME Section XI Code, 1995 Edition, 1996 Addenda. This code will be used to develop our Fourth 10-Year Interval ISI Program on Class 1, 2, and 3 components, with the exception of Containment requirements of IWE and IWL.

This relief is requested pursuant to the provisions of 10 CFR 50.55a (a) (3) (i), the use of a later ASME Section XI Code. Justification is included in the enclosed relief request.

Also included as Attachment (I) is our evaluation, analysis, and classification of differences between the 1989 Code and the 1995 Code with 1996 Addenda. We have concluded from this evaluation that our proposed use of the 1995/1996 Code provides an acceptable level of quality and safety.

Since this relief request is being used as the basis for the development of our Fourth Interval ISI program, approval is needed by December 31, 1999.

Very truly yours,


Robert C. Mecredy

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JSM/kgb:504
Enclosure
Attachment

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Enclosure 1

Rochester Gas and Electric Corporation
Ginna Station
Docket No. 50/244
Fourth 10-Year Interval
Request for Relief No. 35
ASME Code Section XI Alternative for the Fourth Interval ISI Program

I. System/Component(s) for which Relief is Requested:

This Relief Request is requested for Inservice Inspection of all ASME Class 1, Class 2, and Class 3 components in accordance with the rules provided in ASME Section XI Code, Division 1.

II. Code Requirement:

10 CFR 50.55a specifies that the ASME Section XI Code, 1989 Edition, should be utilized for the preparation and use of licensees Inservice Inspection Program as well as their Repair and Replacement Program. Later editions of ASME Section XI Codes may be utilized only if approved by the NRC.

III. Code Requirement from Which Relief is Requested:

R.E. Ginna Nuclear Power Plant is requesting relief from utilizing the ASME Section XI Code, 1989 Edition, and is requesting permission to use the ASME Section XI Code, 1995 Edition with the 1996 Addenda for Class 1, 2, and 3 components for our Fourth Interval ISI Program in its place.

This Relief Request does not address Containment (IWE/IWL and applicable IWA) requirements. The Containment requirements shall be performed to ASME Section XI Code, 1992 Edition with the 1992 Addenda. This year and edition of ASME Section XI Code is the basis for the EPRI/ Industry Guideline which will be used to develop and implement our Containment Inspection Program.

IV. Basis for Relief:

Relief is requested pursuant to the provisions of 10 CFR 50.55a(a)(3)(i), request for approval to use a later ASME Section XI Code. The proposed alternative will provide an acceptable level of quality and safety.

On December 3, 1997, the NRC issued a proposed change in the Federal Register to amend 10 CFR 50.55a for Inservice Inspection. The proposed rulemaking endorsed the use of ASME Section XI Code, 1995 Edition with the 1996 Addenda for the Inservice Inspection as well as Repair or Replacement of Class 1, 2, and 3 components. This later code provides clarification to those requirements specified within the currently approved Code (1989 Section XI). By utilizing the later Section XI Code for Inservice Inspection as well as Repair and Replacement of Class 1, 2, and 3 components, the number of needed relief requests that the NRC would be required to process would be minimized.

It is requested that ASME Section XI Code, 1995 Edition with the 1996 Addenda be utilized to develop R.E. Ginna Nuclear Power Plant Fourth Interval Program.

V. Alternate Examinations:

R.E. Ginna Nuclear Power Plant requests that our Fourth Interval Inservice Inspection (ISI) Program as well as our Repair and Replacement Program shall conform to ASME Section XI Code, 1995 Edition with the 1996 Addenda for Class 1, 2, and 3 components including supports.

VI. Justification for the Granting of Relief:

On December 3, 1997, the NRC issued a proposed change in the Federal Register to amend 10 CFR 50.55a for Inservice Inspection. The proposed Rulemaking endorsed the use of ASME Section XI Code, 1995 Edition with the 1996 Addenda for the Inservice Inspection as well as for Repair or Replacement of Class 1, 2, and 3 components.

The use of the Code (1995 with the 1996 Addenda) provides clarification to those requirements specified within the current approved Code (1989 Section XI Code). NRC approval to utilize the later Section XI Code for Inservice Inspection, as well as Repair and Replacement of Class 1, 2, and 3 components, would minimize the number of needed relief requests that the NRC would be required to process.

VII. Implementation Schedule:

Examinations will be performed during the Fourth 10-year Interval, starting January 1, 2000.

RELIEF REQUEST # 35

ATTACHMENT (1)

ROCHESTER GAS & ELECTRIC CORPORATION

R. E. GINNA NUCLEAR POWER PLANT

ANALYSIS OF ASME CODE,

SECTION XI, 1989 TO 1996 ADDENDA

May 10, 1999

.....9909010024

RELIEF REQUEST # 35

ATTACHMENT (1)

DISCUSSION

For purposes of Inservice Inspection, Rochester Gas and Electric Corporation. (RG&E) proposes to adopt the 1995 Edition with the 1996 Addenda of American Society of Mechanical Engineers (ASME) Section XI Code, except for Subsections IWE and IWL. For IWE and IWL, RG&E will use the 1992 Edition with the 1992 Addenda of ASME Section XI. ASME Section III Code, 1989 Edition shall be used for Repairs and Replacements, as applicable.

EVALUATION OF SECTION XI FROM 1989 TO 1996

Rochester Gas & Electric Corporation has carefully reviewed all of the changes to the ASME Section XI Code from the 1989 Edition through the 1996 Addenda to determine the impact of each revision. To properly understand these changes, it was necessary to review the Minutes of the ASME Boiler and Pressure Vessel Committee and review each modified paragraph in the context of the change.

When ASME modifies requirements, the specific modification often includes several related paragraphs. Also, it sometimes happens that two completely independent changes will modify the same paragraph. Therefore, it is not always possible to describe any change as merely a modification to a paragraph. Because of this, the evaluation of Section XI changes (Attachment 1, Table 1) is grouped by each action that was passed by the ASME Committee. The ASME descriptions of each action in the Minutes were helpful in determining which actions were editorial and which were clarification of the then current rules.

The attached evaluation lists the following five classifications of changes:

Errata: Basically this is correction of an ASME publication error. These changes do not affect requirements, because they are retroactive to the time the error was introduced.

Editorial: These changes have no technical impact and are so simple that the ASME Main Committee and Subcommittee agree that they do not even warrant discussion at the Committee meetings.

No Significant Change: These revisions consist of clarifications or editorial changes that are discussed and voted on at the Main Committee meeting.

Less Restrictive: These changes reduce the technical requirements of the Code. Documentation or procedural changes are not listed, as they have no technical impact. Justification is given for each of these changes.

More Restrictive: These changes increase technical requirements and therefore need no justification for acceptance.

RELIEF REQUEST # 35

ATTACHMENT (1)

Because these categorizations may seem to be subjective, it was decided to use the categories as assigned by the ASME Code Committee. Therefore, every change made to Section XI from 1989 to 1996 was reviewed and analyzed using the minutes from each of the ASME Main Committee meetings. (These minutes are available to the public.)

The evaluation describes why the reductions in requirements do not decrease safety. This evaluation is made by reviewing the change in requirements, using the Code Committee minutes, and considering all of the related Code requirements that must also be met.

Because Subsections IWE and IWL stand on their own merit and will not be updated to the 1996 Addenda, no evaluations have been made on the impact of changes. We have determined that other subsections are not affected by the decision not to update these two subsections.

The evaluation shown in Table I was made to assess whether or not any of the changes made to Section XI, during the period from 1989 to 1996, reduced requirements in a way that would have a negative impact on safety.

NRC ISSUES

On December 3, 1998, the Nuclear Regulatory Commission (NRC) issued a proposed rule incorporating the 1996 Addenda to Section XI into 10CFR50.55a. Five limitations to the use of the 1996 Addenda were proposed. The following addresses the acceptability of these five provisions for RG&E's next ISI interval.

1. Engineering Judgment

The 1992 Addenda revision to the Foreword did not reduce or change any existing Code requirements. Rather, the change to the Foreword documented ASME's long-standing policy. These provisions were previously endorsed by the NRC with their acceptance of the Introduction to Section XI from 1970 to 1974.

2. Quality Assurance

The 1990 Addenda update to NQA-1-1989 made no substantial change in QA requirements. Rochester Gas & Electric Corporation will apply its Appendix B QA Program to Section XI activities as required by the NRC.

3. Class 1 Piping

The 1994 Addenda revision incorporating Cases N-198-1, N-322, and N-334 merely exempted from examination inaccessible welds that cannot be examined. Because these welds are inaccessible, the use of the revision reduces the number of relief requests being sent to the NRC. It has no impact on the number of examinations being performed.



RELIEF REQUEST # 35

ATTACHMENT (1)

4. Class 2 Piping

This revision does not incorporate the provisions to which the proposed rulemaking purports to take exception. The provisions about which the proposed rulemaking expresses concern were added to IWC-1220, Table IWC-2500-1, Category C-F, and Figure IWC-2500-7, in the Winter 1983 Addenda (W83), which was adopted by the NRC on May 5, 1988, and has been used at almost every nuclear power plant in the U.S., without exception or limitation.

5. Reconciliation of Quality Requirements

The NRC's concerns about the 1995 Addenda revision to IWA-4000 are based on the assumption that the revision permits an exception to 10 CFR Part 50, Appendix B, QA requirements. While RG&E believes this conclusion to be inaccurate, RG&E will implement all applicable requirements of Appendix B and will not use Section XI to take exception to Appendix B requirements.

CONCLUSION

The evaluation summarized in Table 1 shows that even though some changes to Section XI from 1989 to 1996 are classified as "less restrictive," the reductions in requirements have no impact on safety. This is the conclusion of the ASME Boiler and Pressure Vessel Committee, and our conclusion based on our extensive evaluation of every change made to Section XI from 1989 to the 1996 Edition.



RELIEF REQUEST # 35, ATTACHMENT 1, TABLE 1
ROCHESTER GAS & ELECTRIC CORPORATION, R. E. GINNA NUCLEAR POWER PLANT
EVALUATION OF REVISIONS TO ASME SECTION XI CODE - 1989 to 1996

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
1996 ADDENDA				
(1)	Table IWA-1600-1, IWA-4610, IWA-4660	Underwater Welding - This revision adds requirements for dry or wet underwater welding for repair/replacement activities on of P-No. 8 and P-No. 4X materials. This change incorporates the provisions of Case N-516.	No significant change.	
(2)	IWA-2110	Terminology - This revision modifies the paragraphs to use current terminology regarding repair/replacement activities and programs.	No significant change.	
(3)	IWA-2315, Appendix IV	Performance Demonstration Requirements for Eddy Current Examination - This revision adds new requirements for performance demonstration of eddy current examination systems and personnel and moves the existing requirements for qualification of personnel for analysis of steam generator eddy current examination date from Appendix IV to IWA-2315. The revision also incorporates the provisions of Case N-307-1 and Case N-553.	More restrictive.	
(4)	IWA-2430	Inspection Intervals - This revision incorporates the provisions of Case N-535. This change permits performance of concurrent inspections to satisfy requirements and schedules of two successive inspection intervals.	No significant change.	



Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(5)	IWA-4132	Alternative Requirements for Items Rotated From Stock - The revision incorporates the provisions of Case N-508-1. This revision permits rotation of previously installed snubbers and relief valves from stock and installed on components without the need for a Repair/Replacement Plan, an Authorized Inspection, or a NIS-2 Data Report, provided the snubber or relief valve is removed from the component only for testing.	Less restrictive.	There is no reduction in safety since the removed snubber or relief valve undergoes testing to confirm its ability to meet design and to detect any degradation. Expanded examinations are required should any failure be detected, in which case, all the provisions for Repair / Replacement would be invoked. This paragraph requires the Owner to maintain traceability and to ensure the rotated item is used in the same design application.
(6)	IWA-4160, IWA-4180, IWA-4311, IWA-4312	Documentation of Repairs and Replacements - This revision adds requirements for documentation of modifications to ensure that the configuration of the equipment is accurately reflected in the design. The revision also adds a requirement that the revised record be certified in accordance with the Construction Code requirements for certification of the original records.	More restrictive.	
(7)	IWA-4221, IWA-4226	Reconciliation of Design Requirements - This revision identifies how the Owner is to reconcile the technical aspects of repair and replacement work performed in accordance with a later Code Edition or Addenda than used for construction. This change incorporates the provisions of Case N-554.	More restrictive.	



Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(8)	IWA-4420, IWA-4610	Metal Removal - This editorial revision clarifies that the Section XI defect removal provisions are not applicable to defect removal and welding performed in accordance with the applicable Construction Code.	No significant change.	
(9)	IWA-4622, IWA-4632	Procedure Qualification Test Assembly for Temper Bead Welding - This revision clarifies the dimensional requirements for the procedure qualification test assembly for qualification of temper bead welding of similar materials.	No significant change.	
(10)	IWA-4634	Examination - This change relaxes the examination requirements for alternative welding methods for dissimilar metals. Instead of requiring radiography, and if practical, ultrasonic examination, any volumetric examination method may now be used.	No significant change.	
(11)	IWB-3641, C-3300	Acceptance Criteria for Austenitic Steel Piping - This revision removes the penalties for flux welds. Service experience and additional fracture toughness data have justified increasing the a/t max limit of 0.60 for flux welds to 0.75 for austenitic materials.	Less restrictive.	This revision is based on new test data which shows that the penalty for flux welds was not justified. Therefore the change has no impact on safety.
(12)	IWB-3740, Appendix L	Analytical Evaluation of Operating Plant Events - Operating Plant Fatigue Assessment - This revision adds guidance for evaluation of plant operating events for acceptability of components for which concern fatigue usage limits may have been exceeded or for which fatigue may be a concern.	No significant change.	
(13)	IWC-3200, IWF-3200	Supplemental Examinations - This revision makes IWC-3200 and IWF-3200 consistent with IWB-3200 and IWE-3200, regarding supplemental examination. The change is editorial in nature, but makes supplemental examination optional.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(14)	I-2110, Table I-2000-1	Examination Requirements - This revision clarifies the examination requirements for reactor-vessel-to flange welds, closure-head-to-flange welds, and reactor vessel CRD housing welds.	No significant change.	
(15)	VIII-3120, Appendix VIII Supplements 2, 10, 11, & 12	Sizing - This revision changes the length sizing acceptance criteria, to 0.75 inch RMS (root mean square) from the plus or minus 1 inch criteria previously specified. The RMS criteria provides a better description of the sizing capability and reduces failures due to occasional inaccurate sizing. This change incorporates the provisions of Case N-538.	No significant change.	
(16)	A-4300, A-5100, A-5200, A-5300	Fatigue Crack Growth - This change provides consistency with the previous approach to fatigue crack growth, in which both the length and the depth are calculated, allowing for flaw shape change during growth.	No significant change.	
(17)	G-2120, G-2214, G-2215, G-2222	Stress Intensification Factors - This revision provides an improved method for calculating the stress intensity factor K. Appendix G is used for development of pressure-temperature limit curves for operating plants. The existing calculation methodology was developed in the early 1970's.	No significant change.	
(18)	J-3000	Maintenance Requiring Subsequent Tests or Examination - This revision identifies that safety and relief valve set point adjustment is not considered a Section XI repair/replacement activity.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(19)	IWA-4150, IWB-2411, IWB-2411, IWB-2412, IWB-2412, IWB-2430, IWB-3122, IWB-3122, IWB-3142, IWB-3420	EDITORIAL		
(20)	IWA-2220, IWA-4110, IWA-4120, IWA-4131, IWA-4180, IWA-4221, IWA-4530, IWA-4621, IWA-4641, K-5220, K-5300	ERRATA		

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
1995 ADDENDA				
(1)	IWA-1000, IWA-2110, IWA-2430, IWA-2500, IWA-4000, IWA-5120, IWA-5214, IWA-5250, IWA-6210, IWA-6230, IWA-9000, IWB-1100, IWB-2420, IWB-3100, IWB-3200, IWC-1100, IWC-2420, IWC-3100, IWC-3200, IWD-1100, IWF-2220, IWF-3112, IWF-3122, IWF-5100, IWF-5400, Appendix II, D-1100, Appendix J	Elimination of Repair, Replacement, and Modification Classifications - This rewrite clarifies what activities are required for any kind of repair, replacement, or modification activity. Combining IWA-4000 and IWA-7000, in the 1991 Addenda, thus combining some of the differing requirements for repair and replacement, reduced the need for the two different classifications, repair and replacement, as well as the third, modification.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(2)	IWA-4110	Through-Wall Leakage - This revision provides that when discrepancies (such as through-wall leakage at other than at mechanical connections) are to be repaired, any repair/replacement activities are to be performed in accordance with IWA-4000.	No significant change.	
(3)	IWA-2220, IWA-2223	Eddy Current Examination - This revision incorporates the provisions of Case N-485-1. The change permits use of eddy current as a surface examination technique.	No significant change.	
(4)	IWA-2221, IWA-2222	Magnetic Particle Examination of Coated Materials - This change allows use of the yoke method for magnetic particle examination on coated ferritic materials, without removing the coating. The revision incorporates the provisions of Case N-458 by reference to Section V. The Case provisions were added to Section V, Article 7, Appendix I, in the 1992 Addenda.	No significant change.	
(5)	IWA-2310, IWA-2323	Qualification of Nondestructive Examination Personnel - This revision clarifies that NDE personnel qualified to IWA-2300 of any Edition and Addenda of Section XI are qualified to all earlier Editions and Addenda.	No significant change.	
(6)	IWA-4120, IWA-4132, IWA-4530	Applicability of Repair/Replacement Requirements - This revision adds repair/replacement activity exemptions for the identified support items, as well as making corrections and clarifications to the current exemption provisions. Clarification is added to require preservice inspections and tests of snubbers following a repair/replacement activity.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(7)	IWA-4131, IWA-4132	Replacement of Small Items - Prior to this revision, Section XI provided an exemption, or alternative, less restrictive requirements for NPS 1 (makeup capacity size for Class 1) and smaller replacement items and installation thereof. Repairs were not similarly exempted. This revision removes the inconsistency by applying the alternative requirements for replacement to all repair/replacement activities. The revision incorporates the provisions of Case N-544.	More restrictive.	
(8)	IWA-4220, IWA-4223, IWA-4224, IWA-4225, IWA-4311	Evaluations of Components - This revision clarifies that the Owner is required to document an evaluation or reanalysis when the design or configuration of an item or system is changed. The evaluations or analyses are required to be certified in accordance with requirements of the Construction Code and Owner's Requirements.	More restrictive.	
(9)	IWA-4221, IWA-4222, IWA-4223, IWA-4224, IWA-4225, IWA-4226, IWA-9000	Code Reconciliation - In the past, some reconciliation efforts have concentrated on administrative and trivial documentation issues that have no effect on adequacy of affected equipment. This revision adds specific requirements for reconciliation of later Editions and Addenda of the Construction Code, or revised Owner's Requirements, for procurement of components, parts, and material.	No significant change.	
(10)	IWA-4311, IWA-4312, IWA-9000	Rerating Pressure Retaining Equipment - The Code provides specific requirements for repair/replacement activities of items, but has not provided any requirements for rerating ASME Code equipment and systems. This revision specifies requirements for rerating of existing Code items in operating plants.	More restrictive.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(11)	IWA-4451	Helical Coil Threaded Inserts - This revision provides new requirements for helical coil threaded inserts. Use of these inserts has previously been identified as neither required nor prohibited, with no requirements nor guidance provided for controlling design or material properties. The revision incorporates the provisions of Case N-496.	No significant change.	
(12)	IWA-5213(a)	Test Condition Holding Time - This revision eliminates the holding time requirements after attaining test pressure and temperature for system leakage tests. Hold times were inadvertently added during the previous rewrite of IWX-5000 in the 1991 Addenda.	No significant change.	
(13)	IWA-5244	Buried Components - This revision simplifies and clarifies the requirements for pressure testing buried components with and without isolable valves. The provisions now address redundant systems with isolable buried components.	No significant change.	
(14)	IWA-9000, Table IWB-2500-1	IWB-2500-1 Examination Category B-F (Pressure Retaining Dissimilar Metal Welds in Vessel Nozzles) & B-J (Pressure Retaining Welds in Piping) - This revision adds a definition for dissimilar metal weld, and revises the tables to be consistent with the fact that the glossary now contains the definition.	No significant change.	
(15)	IWA-9000	Owner - This revision revises the definition of Owner to be consistent with the definition in Section III and other ASME Nuclear Codes and Standards.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(16)	IWB-1100, IWB-1210, IWB-2500, Table IWB-3410-1, IWB-3516, IWB-3520, IWB-3522, IWC-1100, IWC-1210, IWC-2500, Table IWC-2500-1, Fig. IWC-2500-5, Table IWC-3410-1, IWC-3512, IWD-1100, IWD-1210, IWD-2500, Table IWD-2500-1, IWF-1300, Fig. IWF-1300-1	Integrally Welded Attachments - This revision clarifies use of the term "integrally welded attachments" to provide consistency with the provision in Section III, Subsection NF.	No significant change.	
(17)	IWB-1220	Emergency Core Cooling Systems and Makeup Capacity - This revision clarifies that emergency core cooling systems are excluded from calculation of makeup capacity, because they do not operate under normal plant operating conditions.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(18)	IWB-2411, IWB-2412, IWB-2420, IWB-2430, IWB-2500, IWC-2411, IWC-2412, IWC-2420, IWC-2430, Table IWC-2500-1, IWD-2411, IWD-2412, IWD-2420, IWD-2430, Table IWD-2500-1	Inspection Schedule - This revision incorporates the provisions of Case N-509. The change modifies the examinations to be performed on welded attachments for Examination Categories B-K, C-C, and D-A. The extent of examinations for welded attachments to piping, pumps, and vessels is reduced from 100% of all welded attachments to 10%. For Category D-A, the 10% must include those welded attachments most susceptible to corrosion.	Less restrictive.	Industry experience demonstrates that Welded Attachments, even if failure occurs, do not violate the pressure retaining function of the system that it is attached to. By concentrating on Welded Attachments most susceptible to corrosion and sampling 10% within each system, adequate assurance of detection of degradation is maintained. Additionally, the thickness exemption is eliminated so more welded attachments are in the pool for selection. Further examination for cause is required whenever a failure of the attachment is discovered.
(19)	Table IWD-2500-1	Examination method - This revision incorporates the provisions of Case N-509. For Examination Category D-A, the required examination of a welded attachment is now a VT-1. Previously, a VT-3 was required.	More restrictive.	
(20)	Table IWB-2500-1	Inspection of Nozzle to Vessel Welds - This revision incorporates the provisions of Case N-521. This change permits deferral of PWR reactor vessel nozzle welds and inside radius sections to the end of the interval. It applies to all but the first inspection interval.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(21)	Table IWB-2500-1	Examination of Control Rod Housing Bolting - This revision incorporates the provisions of Case N-547. The revision eliminates the requirement for VT-1 visual examination of CRD housing bolting.	Less restrictive.	A Code required VT-2 examination will be performed in accordance with IWB-5220 in lieu of the VT-1 visual examination. The elimination of the visual examination of the CRD housing bolting is not significant because any indication of boric acid residue in the area requires the bolting to be evaluated and corrective action taken.
(22)	Table IWB-2500-1, Table IWC-2500-1	Examination of Longitudinal Welds - This revision incorporates the provisions of Case N-524. The revision reduces the extent of inservice examination of longitudinal piping welds in Class 1 and 2 piping from the lesser of one pipe diameter or 12 inches to the portion of the longitudinal weld within the examination boundary of the intersecting circumferential weld required to be examined.	Less restrictive.	Experience has shown that reduction in length of longitudinal weld to be examined does not affect safety because the area most vulnerable to problems is at the intersection of the longitudinal and girth welds, which is the area to be investigated.
(23)	Fig. IWB-2500-15, Fig. IWC-2500-5, Fig. IWD-2550-1	Examinations Around Supports - This revision adds a footnote to permit examination of welded attachments without removing any support member covering part of the surface area to be examined.	Less restrictive.	Experience has shown that welded attachments can be properly examined without removing support members covering part of the surface area to be examined, because any cracks would be initiated at the attachment weld, not under the support member.

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(24)	Table IWB-3410-1, IWB-3522	Category B-E - This revision corrects the provisions to reflect deletion of Examination Category B-E in the 1993 Addenda.	No significant change.	
(25)	Table IWC-2500-1, Fig. IWC-2500-1, Fig. IWC-2500-2	Examination Requirements - This revision incorporates the provision of Case N-435-1. This revision permits surface examination in lieu of volumetric examination for thicknesses 1/5 in. or less.	No significant change.	
(26)	Table IWC-2500-1	Dissimilar Metal Attachments - This revision clarifies the provisions regarding examination of dissimilar metal attachments.	No significant change.	
(27)	IWF-1230, IWF-2510	Support Exemptions - This revision clarifies that supports on piping that is exempted from volumetric, surface, or VT-1 or VT-3 visual examination are also exempted from examination.	No significant change.	
(28)	Appendix III-2300	Written Procedure Requirements - This change clarifies that it is not necessary for the ANII to approve NDE procedures.	No significant change.	
(29)	Appendix III-3410	Alternative Requirements for Piping Calibration Block Thickness - This revision incorporates the provisions of Case N-461. The change permits a piping calibration block thickness tolerance of plus or minus 25%.	No significant change.	
(30)	Appendix VII-4310	Examination Questions and Test Specimens - This revision clarifies that a random selection process controlled by the employer's written practice may be used to ensure that no individual takes the same examination more than once. The revision also clarifies that "grading units" may be considered a test specimen for the practical examination.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(31)	Table VIII-3110-1	Component Qualification Supplements - This revision includes a reference to coordinated implementation of piping weld qualifications using Supplement 12 and vessel qualifications using Supplement 13.	No significant change.	
(32)	Appendix VIII; Supplements 2 & 3	Qualification Requirements for Wrought Austenitic Piping Welds - This revision simplifies the specimen requirements for wrought austenitic piping welds, by adding a tolerance on wall thickness.	No significant change.	
(33)	Appendix VIII; Supplements 2 & 12	Qualification Requirements for Wrought Austenitic Piping Welds - This revision changes the length size sample set selection criteria to reflect the requirements of the detection test set requirements in Supplement 2, and to allow combination of test sets in Supplement 12. This change reduces the overall number of demonstrations that candidates must perform.	No significant change.	
(34)	Appendix VIII; Supplement 4 & 6	Conduct of Performance Demonstration - This revision incorporates the provisions of Case N-541. The revision deletes the requirement (carried over from piping qualification) to obscure the inside surface and specimen identification for the "blind test," because some vessel examinations must be performed from the inside surface and some sample identification must be known by the individual to verify information regarding thickness, configuration, and geometry.	No significant change.	
(35)	Appendix VIII, Supplement 5	Nozzle Inside Radius Section - This revision incorporates the provisions of Case N-542. This revision eliminates length sizing demonstration requirements of Appendix VIII, Supplement 5 for the inside corner region. The acceptance criteria in Table IWB-3512-1 for the inside corner region are based on depth, not length; therefore there is no need to perform length sizing demonstration.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(36)	K-1200, K-1300, K-2200, K-2300, K-2400, K-4100, K-4210, K-4220, Table K-4320-1, Fig. K-4320-1, K-4321, K-4332, K-5000, K-5100, K-5200, K-5300, K-5400	Assessments of Reactor Vessels - This revision modifies the method for evaluating the reactor coolant pressure boundary for continued service when the predicted upper shelf impact energy level, as defined in ASTM E 185, decreases below a specified value. The change also adds requirements for evaluating Level C and Level D service loadings. The revision incorporates the provisions of Case N-512.	No significant change.	
(37)	IWA-2110, IWB-2200, IWB-2412, IWC-2412, IWD-2412, IV-2000, VII-4223	EDITORIAL		
(38)	IWC-1223	ERRATA		
1994 ADDENDA				
(1)	IWA-2420, IWA-6220	Substitute Examinations and Tests - This change deletes the reference to substitute examinations and tests.	No significant change.	
(2)	IWA-4150	Verification of Acceptability - This paragraph has been changed to exempt modifications and like-for-like replacements, which are not associated with service induced failures, from the verification requirements of IWA-4150. The change incorporates the provisions of Case N-556.	No significant change.	



Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(3)	IWA-4170	Alternative Rules for Repairs, Replacements and Modifications - This revision requires that when specific provisions of later Editions and Addenda of Section XI are used for performing repair, replacement, and modification activities, all related requirements are to be met. The revision incorporates the provisions of Case N-389-1.	No significant change.	
(4)	IWA-4810, IWA-4820	Examination and Preservice Inspection - This revision clarifies the examination and preservice inspection requirements for both repairs and installation of replacements may be performed concurrently with the preservice inspections required by IWA-4820.	No significant change.	
(5)	IWA-7000, IWB-4000, IWB-7000, IWC-4000, IWC-7000, IWD-4000, IWD-7000, IWF-4000, IWF-7000	Repair and Replacement - The 1991 Addenda consolidated repair and replacement rules into IWA-4000. This revision deletes the above Articles, which are no longer needed.	No significant change.	
(6)	IWA-9000	Definition of Owner - This revision modifies the definition of "Owner" to be consistent with other nuclear Codes and Standards.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(7)	IWB-1220, IWC-1223, IWD-1220	Exemption from Examination - This revision exempts welds or portions of welds, which are located inside penetrations, from examination. The change incorporates the provisions of Case N-198-1, Case N-334, and Case N-322.	Less restrictive.	The provisions exempt welds inside penetrations from examination. The welds are inaccessible and could never be examined without major modification and/or redesign. There is no impact on safety because the welds are inaccessible and could never be examined. Therefore, the change has no safety/technical impact.
(8)	IWB-2411, IWB-2412, Table IWB-2500-1	Inspection Programs - This change clarifies the requirements for partial deferral of items from the inspection program.	No significant change.	
(9)	IWB-2412, IWC-2412, IWD-2412	Inspection Program B - This revision provides requirements for adding items or welds to the inspection schedule.	More restrictive.	
(10)	Table IWB-2500-1	Examination Categories - This revision changes the tables to clarify provisions and provide consistency.	No significant change.	
(11)	Table IWB-2500-1	Pump and Valve Internal Surface VT-3 Examination - This revision continues to allow partial examination of pump and valve casing internals when only partial disassembly is performed, but requires full examination to be made at a later date when disassembly of the component permits a full examination.	More restrictive.	
(12)	IWB-3710	Analytical Evaluation of Plant Operating Events - This revision changes the scope statement to include operational integrity issues.	More restrictive.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(13)	IWF-2410	Inspection Programs - This revision adds rules to provide for adding items or welds to the inspection schedule.	More restrictive.	
(14)	Appendix I, Supplement 3	Calibration Blocks for Examination of Parts with Curved Surfaces - This revision reinstates requirements previously specified in the 1986 Edition of Section XI regarding calibration blocks for examination of parts with curved surfaces.	More restrictive.	
(15)	VII-6000	Authorized Nuclear Inspector - This paragraph has been deleted because it is redundant with the provisions contained in IWA-2100.	No significant change.	
(16)	Appendix VIII, Supplement 8	Qualification Requirements for Bolts and Studs - This revision permits the qualification notch of a stud or bolt to be located within one diameter of the end opposite the search unit. The ultrasonic technique qualification can still be demonstrated with such a notch location. The change incorporates the provisions of Case N-457.	No significant change.	
(17)	Appendix VIII, Supplement 13	Requirements for Coordinated Implementation of Selected Aspects of Supplements 4, 5, 6 and 7 - This revision adds Supplement 13, which provides specific performance demonstration requirements for ultrasonic examination, personnel, equipment and procedures.	No significant change.	
(18)	A-3000	Method for K_I Determination - This revision modifies A-3000 to allow the user to use a more accurate and less conservative formulation for determining stress intensity factors for any gradient stress distribution over the flaw face.	Less restrictive.	The less conservative approach is acceptable because it has been verified to be more accurate based on published studies. Also, these provisions are nonmandatory.
(19)	C-3220	EDITORIAL		

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(20)	IWA-5250, IWF-2500, H-1300, Table H-5310-1, Table H-5310-2, H-5420, Table H-5410-1, Table H-6310-1, Table H-6310-2, K-4210	ERRATA		
1993 ADDENDA				
(1)	IWA-1400, Footnote 1	Terminology, Nuclear Power Plant - This revision changes the term 'power system' to 'nuclear power plant', for consistency with other changes to 'nuclear power plant' in the 1991 Addenda and the 1992 Edition.	No significant change.	
(2)	Table IWA-1600-1, Appendix A, A-4400	Referenced Standards and Specifications - The reference to ASTM E 185 is clarified to be to the 1982 Edition, and the title is corrected to "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels."	No significant change.	
(3)	IWA-2216	Remote Visual Examination - This change adds requirements for color resolution for remote visual examination. When using remote visual examination, it is necessary to detect conditions such as corrosion. With black and white cameras, corrosion byproducts could be missed.	More restrictive.	
(4)	IWA-2233, Appendix IV	Eddy Current Examination - This revision references Section V, Article 8, Appendix II for eddy current examination because the Section XI, Appendix IV provisions were added to Section V in the 1992 Addenda. Section XI, Appendix IV still contains additional personnel requirements.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(5)	IWA-2430, IWB-2411, IWB-2412, IWF-2410	Interval Extensions - This revision clarifies that inspection periods may be adjusted by up to one year to coincide with plant outages.	No significant change.	
(6)	IWA-4130	Responsibilities, Repair Organization's Quality Assurance Program - This revision adds requirements for a Quality Assurance Program for a repair organization when the organization is other than the Owner.	More restrictive.	
(7)	IWA-4130, IWA-4140, IWA-4150, IWA-4170, IWA-4310, IWA-4422, IWA-4423, IWA-4424, IWA-4425, IWA-4512, IWA-4542, IWA-4621, IWA-4910, IWA-9000	Definition of Construction Codes - Previously, Section XI defined Construction Code in such a way that many people interpreted Construction Code to include the Design Specifications or Owner's Specifications. This revision clarifies that the Design Specifications and Owner's Requirements, although required by some Construction Codes, are not part of the Construction Code.	No significant change.	
(8)	IWA-4140	Repair/Replacement Program and Plan - This revision clarifies that reference points are required to be recorded for repairs only when required by IWA-2600.	No significant change.	
(9)	IWA-4180	Material - This revision deletes IWA-4180 because the provisions are redundant and unnecessary.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(10)	Table IWA-5210-1, IWA-5221, Table IWB-2500-1, IWB-5210, IWB-5220, IWB-5230, Table IWB-5230-1, IWB-5240, Table IWC-2500-1, IWC-5210, IWC-5210, IWC-5220, IWC-5230, IWC-5240, IWD-5240	System Leakage Test Boundary - This revision provides for a system leakage test in lieu of a system hydrostatic test for Class 1 and 2 systems once during each inspection interval. The change incorporates the provisions of Case N-498.	Less restrictive.	The purpose of the test is to assure leak tightness, not to overstress the components, which could cause problems. The new test will still demonstrate leak tightness, so there is no impact on safety.
(11)	IWA-5211, IWC-5210, IWD-5210	System Pressure Tests, System Pneumatic Tests - This revision clarifies that a pneumatic test may be performed in lieu of a system leakage test or a system hydrostatic test for Class 2 or 3 steam systems, after repair, replacement, or alteration.	No significant change.	
(12)	IWA-5250	Corrective Action - This revision clarifies that the requirement to remove a bolt and perform a VT-3 inspection when leakage is found at a bolted joint does not apply to gaseous systems.	No significant change.	
(13)	IWA-9000	Glossary - This revision deletes definitions for "full stroke time," "functional pressure differential (valve)," and "operating convenience."	No significant change.	
(14)	Table IWB-2500-1, Table IWC-2500-1	Weld Examinations - This revision clarifies that welds must be examined, to the extent practical, in the same sequence in successive intervals as the sequence in which they were examined in the first interval.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(15)	IWB-2500, IWC-2500	Examination Categories - This revision changes the identification lettering on the outside surfaces of the figures to make them consistent.	No significant change.	
(16)	IWB-3730, Appendix K	Fracture Toughness Criteria for Protection Against Failure - This change provides acceptance criteria and evaluation procedures for assessment of reactor vessels when the predicted upper shelf Charpy impact energy level is below 50 ft-lbs.	Less restrictive.	The Code revision allows an evaluation to demonstrate equivalence with vessels which have Charpy impact energy levels above 50 ft-lbs. The new method is based on more advanced technology and therefore there is no reduction in safety.
(17)	IWF-2420, IWF-2430	Successive Inspections, Additional Examinations - This revision clarifies when successive inspections and additional examinations are required for supports by providing more specific cross-references and expanding the description of the conditions that require these examinations.	No significant change.	
(18)	Appendix II	Data Report Forms - This revision adds guidance for completing the NIS-1 and NIS-2 Owner's Report Forms, similar to that provided in other sections of the Code.	No significant change.	
(19)	Appendix VII, VII-3300, VII-4240	Qualification of NDE Personnel for Ultrasonic Examinations - This revision clarifies the intent of 'outside agency' for large companies administering the examinations required by VII-4342 and clarifies that no examination is required to meet the requirements for annual training.	No significant change.	
(20)	Appendix VII, VII-4220	Training Course Content and Duration - This revision provides requirements for training of ultrasonic examination personnel previously qualified under a written practice not meeting the additional requirements of Appendix VII.	More restrictive.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(21)	VIII-3110, VIII-3120, VIII-3130, Table VIII-3110-1, VIII-4120, Fig. VIII-S1-2A, Supplements 2, 3, 4, 6, Table VIII-S7-1, Supplements 8, 9, 10, 11, 12	Performance Demonstration for Ultrasonic Examination Systems - This revision adds three new supplements for performance demonstration requirements, including requirements for dissimilar metals (Supplement 10) and weld overlays (Supplement 11). Supplement 12 provides some reduction in performance qualification requirements when one individual is qualified for more than one method. The flaw depth sizing acceptance criteria is changed use a root mean square basis instead of linear regression. Many editorial revisions are also included.	No significant change.	
(22)	A-4300	Fatigue Crack Growth Rate - The current provisions for fatigue crack growth procedures do not clearly specify how compressive loads are to be handled. The revision adds a reliable method to account for compressive loads by accounting for crack closure effects.	More restrictive.	
(23)	A-5200, A-9000	Flaw Analysis - This revision accommodates possible flaw shape change due to fatigue crack growth and clarifies the plastic zone correction for fatigue growth analysis. The definition of 'end-of-period flaw size' is clarified.	More restrictive.	
(24)	Appendix F	Inspection Plan Contents, Substitute Examinations or Tests - This revision deletes the provisions for addressing substitute examinations or tests in the inspection plan. The provisions were deleted because substitute examinations or tests are not permitted by Section XI.	No significant change.	
(25)	F-2500	Inspection Plan Contents, Containment Examinations - This revision adds a new Supplement 5 to specifically address containment vessels and containment liners.	No significant change.	
(26)	G-2215	Low Temperature Overpressure Protection Systems - This revision adds guidance for low temperature overpressure protection systems. The revision incorporates the provisions of Case N-514 into Appendix G.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(27)	Fig. IWA-4546-1, Fig. IWA-4546-2, IWA-5250, IWB-3132, IWC-3122, IWF-3122, A-1100	EDITORIAL		
(28)	IWA-4412, IWA-4910, Fig. IWB-3641-1, A-4300, C-3210, C-3320, C-3420, C-3420	ERRATA		
1992 ADDENDA				
(1)	Table IWA-1600-1, IWA-2310, IWA-2320, IWA-2330, IWA-2350, IWA-2360, IWA-2370, IWA-2380, Appendix VII	Qualification and Certification of NDE Personnel - This revision adopts a new ASNT Standard CP-189 for qualification and certification of nondestructive examination personnel.	More restrictive.	
(2)	Table IWA-1600-1, IWF-5200, IWF-5300	Referenced Standards and Specifications - This change clarifies the references the OM Part 4 (1987 + OMa-1988 Addenda) and adds reference to ASTM D974-1987.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(3)	Table IWA-1600-1, VIII-4110, VIII-4120, Supp. 1 including Figs.	Essential Variable Tolerances - This revision incorporates the provisions of ASTM E 1324-1990, for measuring electronic characteristics of ultrasonic instruments, and updates reference to ASTM E 1065, to the 1987A edition. In addition, the tolerances are modified on the basis of recent data. The change also permits system characterization as opposed to characterization of individual components. In addition, the revision provides for more control of sensitivity for narrow bandwidth systems.	No significant change.	
(4)	IWA-2216	Visual Examination Cleaning Requirements - IWA-2216 was deleted because the requirements for cleaning prior to visual examination have been added to Section V.	No significant change.	
(5)	IWA-2350	Limited Certification - This revision clarifies the definition of limited certification and permits deletion of training topics with corresponding reductions in training hours, examination content, and required experience. The change incorporates the provisions of Case N-503.	No significant change.	
(6)	IWA-4110, IWA-4120	Repairs and Replacements - This revision expands and clarifies the exemptions from the scope of the repair and replacement rules.	No significant change.	
(7)	IWA-4111, IWA-4120, IWA-4710	Alternative Requirements for Small Items - This revision deletes the exemption from the provisions of IWA-4000 for NPS 1 and smaller items, and replaces it with an alternative requirement to provide assurance that the item will function as designed. The reduced provisions are no longer applicable to Class 1 items larger than the makeup capability limit for the plant, nor for heat exchanger tubing or sleeves or welded tube plugs for heat exchanger tubing.	More restrictive.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(8)	IWA-4412, IWA-4413	Tube and Tubesheet Hole Plugging - This revision combines the two paragraphs, because they contain similar requirements for applicability, qualification and performance for Class 1 welded tube and tubesheet hole plugging.	No significant change.	
(9)	IWA-4512, IWA-4513, IWA-4522, IWA-4532	Gas Tungsten-Arc Welding - This change involves lowering the postweld temperature maintenance for the gas tungsten-arc temperbead weld repair process from a range of 450 F to 550 F to a minimum temperature of 300 F.	No significant change.	
(10)	IWA-5265	Location of Pressure Measuring Devices - This revision clarifies that the 106 percent overpressurization limit takes priority over achieving the minimum pressure throughout the system.	No significant change.	
(11)	IWA-9000, Table IWB-2500-1	Definition - This revision moves the definition of "belt line region", from Table IWB-2500-1 to IWA-9000.	No significant change.	
(12)	IWA-9000	Glossary - This revision adds definitions of "post tensioning," "prestressed concrete," "reinforced concrete," "tendon," "structural integrity test," and "unbonded tendons" and deletes "active valve," "exercising," "maintenance," "passive valve," "routine servicing," and "system resistance."	No significant change.	
(13)	IWB-1220	Scope and Responsibilities - This revision deletes the reference to 10CFR50 for definition of the reactor coolant pressure boundary and changes the definition of "in piping" to agree with Subsections IWC and IWD.	No significant change.	
(14)	Table IWB-2500-1	Examination Categories - The table was revised to clarify that Examination Categories B-H and B-K-1 are never required to have volumetric examinations.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(15)	IWD-5222	System Hydrostatic Test - This revision exempts safety or safety relief valve piping that discharges into a containment pressure suppression pool from any kind of pressure test. The previously required pneumatic test did not provide a meaningful test of this piping.	No significant change.	
(16)	I-2500	Ultrasonic Thickness Measurements - Section XI does not include provisions for measuring thickness using ultrasonic equipment. This change provides guidance for performing any UT thickness measurements required by Section XI.	More restrictive.	
(17)	Appendix VI	Ultrasonic Examination of Bolts and Studs - The Appendix has been deleted because its provisions have been incorporated into Appendix VIII.	No significant change.	
(18)	A-4200, Fig. A-4200-1	K _{IC} Curves - This revision modifies the K _{IC} curve in Fig. A-4200-1 to agree with the source equations in Section III, Appendix G.	No significant change.	
(19)	IWA-9000, Fig. IWB-2500-20, IV-2700, A-9000, H-4221, Fig. J-1000-1	ERRATA		
1992 EDITION				
(1)	Table IWA-2210-1	Visual Examinations - The units for character height were changed from mils to inches for consistency with other Code dimensional units.	No significant change.	
(2)	Table IWB-2500-1	Dissimilar Metal Welds - This revision clarifies that Category B-F applies to dissimilar metal welds only in vessel nozzles, not in piping.	No significant change.	



Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
1991 ADDENDA				
(1)	IWA-2110, IWA-2200, IWA-2430	Examination and Inspection - This revision adds coverage for concrete containments under the general provisions for examination and inspection.	More restrictive.	
(2)	Table IWA-1600-1, IWA-2120	Qualification of Authorized Inspection Agencies - This revision updates the reference to ASME N626 to the 1991 Addenda and makes accreditation of the Authorized Inspection Agency in accordance with the new provisions of ASME N626 mandatory.	No significant change.	
(3)	IWA-2321, IWA-2322, IWA-2323, IWA-2324, IWA-2325	Vision Tests - This revision changes the eye examination test requirements for near vision from Jaeger J-1 to Snellen 20/25 and provides qualification requirements for the required near-distance test chart. This revision incorporates the provisions of Case N-490-1.	No significant change.	
(4)	IWA-2323, IWB-2411, IWB-2412	Level III Personnel; Inspection Program - This revision clarifies the provisions for recertification of Level III NDE personnel and corrects the term "inspection period" to "inspection interval" in IWB-2411 and IWB-2412.	No significant change.	
(5)	IWA-2410	Code Edition and Addenda for Inservice Inspection - This revision deletes paragraphs that conflicted with NRC requirements in 10CFR50.55a.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(6)	IWA-4000, IWA-5120, IWA-5250, IWA-6340, IWA-7000, IWB-3113, IWB-3123, IWB-3133, IWB-3143, IWB-4100, IWB-4200, IWB-4300, IWB-7100, IWB-7300, IWC-3113, IWC-3124, IWC-3133, IWC-7100, IWD-7100, IWF-4100, IWF-4200, IWF-4300, IWF-4400, IWF-5400, IWF-7100	Repairs and Replacements - This revision consists of a complete rewrite of IWA-4000 and IWA-7000 into one Article, IWA-4000. Provisions from IWB-4000 and IWF-4000 regarding repairs are also moved into the new Article.	No significant change.	
(7)	IWA-4110, Appendix J	Guide to Section XI Repair and Maintenance Activities - This revision adds a new Nonmandatory Appendix J to provide guidelines for distinguishing plant maintenance work from Section XI repair and replacement activities.	No significant change.	
(8)	IWA-4120	Exemptions - This revision clarifies that heat exchanger tubing, and sleeves and welded plugs used for heat exchanger tubing, are not exempt from the requirements of IWA-4000 for replacement items.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(9)	IWA-4310	Defect Removal Procedure - After defect removal, IWA-4310 allows the resulting reduced section thickness to be evaluated. This revision clarifies that the evaluation techniques given in some of the Section XI Appendices may be used. The change also removes the requirement for surface examination of the removal cavity when the full thickness of the weld is removed and the back side of the joint is inaccessible.	No significant change.	
(10)	IWA-4500	Temperbead Weld Repair - This revision incorporates the provisions of Case N-432. The changes include addition of the GTAW temperbead repair techniques and additional limits on the permissible depth and area of temperbead repairs.	No significant change.	
(11)	Fig. IWA-4513.1-1	Temperbead Weld Repair - This revision adds a figure that should have been included when IWA-4500 was revised in the 1990 Addenda.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(12)	IWA-5110, IWA-5120, IWA-5210, IWA-5220, IWA-5246, IWA-5250, IWA-5260, IWA-5300, Table IWB-2500-1, IWB-5210, IWB-5222, IWB-5240, Table IWC-2500-1, IWC-5210, IWC-5220, IWC-5240, Table IWD-2500-1, IWD-5210, IWD-5220, IWD-5240	System Pressure Tests - This revision clarifies the system pressure test requirements for Class 1, 2, and 3 systems and components. Most of the changes are editorial, but this revision replaces the system functional test and the system inservice test with the system leakage test.	No significant change.	
(13)	IWA-5240	VT-2 Visual Examination - This revision makes the terminology for VT-2 visual examination consistent.	No significant change.	
(14)	IWA-9000	Glossary - This revision adds definitions for "design life" and "design lifetime."	No significant change.	
(15)	IWB-1220, IWC-1223, IWC-1230, IWD-1210, IWD-1220, Table IWD-2500-1	Inaccessible Integral Attachments - This revision adds provisions to exempt integral attachments that are inaccessible for inspection.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(16)	IWB-2411, IWB-2412, Table IWB-2500-1, IWC-2412, IWD-2412	Inspection Programs - This revision clarifies that under Inspection Program B it is permissible to defer inspections to the end of the interval as allowed by the footnotes in the 2500-1 Table and clarifies the associated percentage requirements.	No significant change.	
(17)	IWB-2420, IWC-2420, IWD-2420, F-2200	Successive Inspections - This revision corrects the terminology in IWB-2420 and IWC-2420 to be consistent with IWB-3000 and IWC-3000. In addition, similar provisions for successive examinations are added for Class 3 components.	No significant change.	
(18)	IWB-2430, IWC-2430, IWD-2430	Additional Examinations - This revision changes and clarifies the extent of additional examinations to be performed upon discovery of a flaw or relevant condition that exceeds the acceptance criteria. The change also adds requirements for additional examinations when flaws or relevant conditions are found in Class 3 components.	No significant change.	
(19)	IWC-1220	Components Exempt From Examination - This revision clarifies the exemptions for components within the RHR, ECC, and CHR systems.	No significant change.	
(20)	IWC-5222	System Hydrostatic Test - This revision adds provisions for combining the hydrostatic test of the Class 2 portion of the BWR Main Steam System with the hydrostatic test of the Class 1 portion of the Main Steam System, when the Class 2 portion cannot be isolated. The change incorporates the provisions of N-479.	No significant change.	
(21)	IWC-5222	Exemptions to System Hydrostatic Tests - New paragraph (g) exempts open ended vent and drain lines and open ended safety and relief valve discharge lines from a flow path test. These lines were required to be subjected to a flow path test, in lieu of a hydrostatic test, beyond the last shutoff valve.	Less restrictive.	This change eliminates a test that really was meaningless because the piping must be examined by other means during installation.

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(22)	IWD-1210, IWD-1220, IWD-2200, IWD-2500, Table IWD-2500-1	Examination Requirements - This revision eliminates Examination Category D-C, Systems in Support of Residual Heat Removal from Spent Fuel Storage Pool. The requirements of Category D-C have been incorporated within Categories D-A and D-B.	No significant change.	
(23)	IWF-2200	Adjustment, Repair, and Replacement - This revision adds new requirements for examination of component supports following adjustment, repair, or replacement. This revision also permits preservice examination of some component supports prior to initial heating.	More restrictive.	
(24)	III-1100	Ultrasonic Examination Calibration Blocks - This revision clarifies that calibration block materials need not be the same grade as the material to be examined, as required by III-3411, provided the provisions of IWA-2240 are met.	No significant change.	
(25)	Appendix VIII, Supplements 4, 5 & 7	Performance Demonstration for Ultrasonic Examination Systems - This revision clarifies the Appendix and permits a 10 percent tolerance on the thickness of the flawed specimens used for evaluation.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(26)	Table IWA-1600-1 IWA-2110, IWA-2430, Fig. IWA-4513.1-1, Table IWB-2500-1, IWB-3112, IWB-3132.1, Table IWC-2500-1, IWC-3112, IWC-3122.1, IWF-2410, IWF-2420	ERRATA		
1990 ADDENDA				
(1)	IWA-1400, IWA-6100, IWA-6210, IWA-6220, IWA-6230, IWA-6240, IWA-6340	Records and Reports - This revision clarifies the Owner's responsibilities for preparation of plans, schedules, summary reports, and Form NIS-1 and NIS-2 Owner's Reports. It also adds requirements for the content of the abstract of examinations required for the Form NIS-1.	No significant change.	
(2)	IWA-1400, IWA-2420, IWA-2440, IWA-6230, IWA-6240	Inspection Reports, Schedules and Plans - This revision changes the provisions for the preparation and submittal, to the regulatory and enforcement authorities, of preservice and inservice inspection reports, schedules and plans to clarify that schedules are required to be prepared but not submitted.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(3)	IWA-1400	Owner's Responsibilities for Flaw Evaluation - This revision adds provisions to indicate that the Owner is responsible for flaw evaluation calculations. IWA-1400(p) provides that the Owner is responsible for maintaining permanent records of flaw evaluations when the flaw exceeds the acceptance criteria of Section XI.	No significant change.	
(4)	IWA-2210	Qualifications for Visual Examination - This revision replaces the provisions in Section XI regarding qualification of personnel for visual examination with reference to the provisions in Article 9 of Section V, with supplementary provisions for Section XI use.	No significant change.	
(5)	IWA-2322, VII-4322, VII-4330, VII-4342	Practical Examination Provisions for Level III NDE Personnel - SNT-TC-1A provides for practical examinations of NDE Level I and Level II qualifications. This change requires practical examinations for qualification and recertification of Level III NDE personnel for Section XI. This revision incorporates the provisions of Case N-489.	No significant change.	
(6)	IWA-4500, Fig. IWA-4513-1, Fig. IWA-4531.1-1, Fig. IWA-4532.1-1	Repair Welding - This revision updates the temperbead welding requirements and replaces half bead welding with temperbead welding, for greater consistency with the welding requirements in Section III.	No significant change.	
(7)	IWA-5250	Corrective Action to be Taken for Leaks in Bolted Connections - This revision changes the requirements to be more specific as to which bolts should be examined when evidence of leakage is found in a bolted connection during the system pressure test.	No significant change.	
(8)	IWC-3513	Allowable Flaws for Volumetric Examination of Studs and Bolts - This revision clarifies that for subsurface flaws in studs and bolts, the standards of Table IWC-3513-1 apply.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(9)	IWF-1210, IWF-1230, IWF-2200, IWF-2410, IWF-2420, IWF-2430, IWF-2500, IWF-3112, IWF-3122, IWF-3410	Sampling Plans for Inspection of Component Supports - This revision adds a sampling plan for inspection of component supports. In most cases, this change will cause a decrease in the number of piping supports to be examined, and an increase in the number of other component supports to be examined. This revision incorporates the provisions of Case N-491.	Less restrictive.	This revision allows a sampling of supports, rather than a 100% examination, based on the results of evaluations made in the past. There have been no significant problems with the supports and sampling provides a realistic means to provide appropriate evaluations.
(10)	Appendix IV	Eddy Current Examination of Nonferromagnetic Steam Generator Heat Exchanger Tubing - This revision is a rewrite of Appendix IV which incorporating latest multifrequency techniques for eddy current examination. This revision incorporates the provisions of Case N-401-1.	No significant change.	
(11)	A-1100, A-5200, A-5300, A-9000	Definition of Terms Relating to Flaw Evaluation - This revision adds and modifies definitions relating to flaw evaluation and acceptance.	No significant change.	
(12)	A-4300	Fatigue Crack Growth Rate - This change provides fatigue crack growth curves for ferritic steel in an air and water environment. This revision incorporates the provisions of Case N-463-1.	Less restrictive.	The new methodology provides an equivalence with the current procedures.
(13)	Fig. A-4400-1	Effect of Fast Neutron Fluence and Copper Content Shift on RT_{NDT} - This revision deletes the figure which was noted, "In Course of Preparation."	No significant change.	
(14)	IWA-9000, IWB-4332, Table IWD-2500-1	EDITORIAL		

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(15)	IWA-2110, IWA-5214, IWA-7210, Fig. IWB-3610-1, IWB-4241, IWB-4242, Table IWC-2500-1, Table IWC-3510-1, Table IWC-3511-1, Fig. G-2210-1, H-1300, H-3210, Table H-4211-1, H-4221, Table H-5310-1, Table H-5310-2, H-5420, Table H-5410-1, Table H-5410-2, H-6310, H-6320, Table H-6310-2	ERRATA		

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
1989 ADDENDA				
(1)	IWA-1400, IWA-4130, IWA-6220	Repair Program - This revision adds new rules that require the Owner to have both a Repair Program and Repair Plans. The Repair Program contains managerial and administrative (QA) controls, while the Repair Plans contain requirements and procedures specific to each repair.	More restrictive.	
(2)	Table IWA-1600-1	Referenced Standards - Updated ANSI/ASME N626 to 1988.	No significant change.	
(3)	Table IWA-1600-1, I-2000, Appendix VIII	Ultrasonic Examination Requirements - This revision adds a new mandatory appendix which requires performance demonstration for qualification of procedures, equipment, and personnel used for ultrasonic detection and sizing of flaws in vessels, bolting, and piping welds. This addition incorporates the provisions of Case N-409-2.	No significant change.	
(4)	IWA-2110	Duties of the Inspector - This revision deletes the reference to the Inspection Specialist, because this designation is no longer used in ANSI/ASME N626. This change deletes the requirement for the Inspector to obtain assistance in reviewing technical content of NDE procedures.	No significant change.	
(5)	IWA-2200	Examination Methods - This revision adds a reference to Nonmandatory Appendix D for surface preparation prior to NDE.	No significant change.	
(6)	IWA-2340	Level III Education - This revision provides that a high school equivalency examination need not be a federal or state administered standardized test.	No significant change.	
(7)	IWA-2430, IWA-9000	Inspection Intervals - This revision clarifies the definition of "commercial service" for determining the start of each inspection interval.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(8)	IWA-2431, IWA-2432, IWB-2411, Table IWB-2412-1, Table IWB-2500-1, IWC-2411, Table IWC-2412-1, IWD-2411, Table IWD-2412-1	Inspection Program - This revision deletes the 40 year limit on Inspection Programs A and B. The deletion of this limit provides continuing inservice inspection requirements for plants after they have been operating for 40 years.	No significant change.	
(9)	IWA-4322	Removal of Burned Surfaces - This revision clarifies that when metal is thermally cut, removal of the burned surface must be by mechanical means.	No significant change.	
(10)	IWA-4700, IWA-9000	Pressure Testing of Seal Welds - This revision exempts seal welds from the system hydrostatic test requirements following repair by welding.	No significant change.	
(11)	IWA-4700	Pressure Testing of Half-bead Weld Repairs - This revision provides an exemption from the hydrostatic test for vessel repairs of up to 10 percent of the design thickness made by the half-bead welding technique.	No significant change.	
(12)	IWA-7320, IWA-9000	Installation - This revision adds provisions for the installation and testing of replacements that are attached to the pressure boundary by mechanical means.	More restrictive.	
(13)	IWA-9000	Glossary - Definitions are added for "overpressure protection" and "safety function".	No significant change.	
(14)	IWB-2500, IWB-3512, Table IWB-2500-1, Table IWB-3410-1	Category B-D - This revision clarifies that the examination provisions apply to the specified areas of full penetration welded nozzles in vessels and are not restricted to only the welds.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(15)	Table IWB-2500-1, Fig. IWB-2500-8, Table IWB-3410-1, IWB-3514	Pressure Retaining Dissimilar Welds In Vessel Nozzles - This revision clarifies that Examination Category B-F applies to dissimilar metal welds only in vessel nozzles, not in piping.	No significant change.	
(16)	Table IWB-2500-1	Pressure Retaining Bolting Greater Than 2 Inches In Diameter - This revision replaces the surface examination requirement for reactor vessel closure head nuts (Item B6.10) with a VT-1 visual examination meeting the acceptance criteria of IWB-3517. Prior to this revision, there was no acceptance criteria given for the surface examination.	No significant change.	
(17)	Table IWB-2500-1, Table IWC-2500-1	Examination of Pressure Retaining Welds in Piping - This revision clarifies that pressure retaining welds in carbon and low alloy steel piping are to be examined by ultrasonic examination for transverse indications only when reportable transverse indications were found during the preservice examination.	No significant change.	
(18)	IWB-3650, Appendix H	Acceptance Criteria for Flaws in Ferritic Piping - This revision provides evaluation techniques and acceptance criteria for evaluating flaws in ferritic piping that exceed the acceptance standards of IWB-3514.2. This revision incorporates the provisions of Case N-463.	Less restrictive.	The new methodology provides an equivalence with the current procedures.
(19)	IWB-4300	Heat Exchanger Tubing - This revision adds provisions for repair of heat exchanger tubing by sleeving. The sleeving methods include explosive welding, fusion welding, brazing, and mechanical, hydraulic, or explosive expansion.	More restrictive.	

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(20)	IWC-1221, IWC-1222, IWD-1220	Components Exempt From Examination - This revision was intended to clarify the existing provisions regarding exemptions from examination for Class 2 and 3 piping systems. However, the revision expanded the exemption to include vessels of all sizes in exempt piping.	Less restrictive.	The revision incorporates the provisions of Case N-408-2 which has been accepted by the NRC. The change merely provides that components in an exempt piping system are also exempt from the inservice examinations. This change does not reduce safety.
(21)	IWF-5400	Repairs and Replacements for Snubbers - This revision deletes reference to O&M-1987, Part 4 (Rev. 1) for repair and replacement of snubbers because the repair and replacement requirements of O&M Part 4 are not consistent with Section XI requirements.	No significant change.	
(22)	Appendix F	Valve Test Tables - This revision adds a new Footnote to reference ANSI/ASME OM, Part 10, 5210 and 5320 for identifying valves required to be exercised.	No significant change.	

Item #	Paragraphs Affected	Description	Classification	Justification for Reduction
(23)	IWB-3641.3, IWB-7100, IWB-7300, IWB-7400, IWB-7600, IWC-7200, IWC-7300, IWC-7600, IWD-7200, IWD-7300, IWD-7600, IWF-7100, IWF-7300, IWF-7310, IWF-7400, IWF-7600	ERRATA		

