SOUTHERN NUCLEAR OPERATING COMPANY
MATERIALS AND INSPECTION SERVICES

VOLUME 1

INTRODUCTION

FOURTH TEN-YEAR INSERVICE INSPECTION PLAN

E. I. HATCH NUCLEAR PLANT

UNIT 1

REVISION 1

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HATCH UNIT 1 FOURTH INTERVAL EXAMINATION PLANS
INTRODUCTION

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INTRODUCTION

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HATCH UNIT 1 FOURTH INTERVAL ISI PLAN
INTRODUCTION

Scope

The 4th Interval ISI Plan is a compilation of ISI related activities. Each activity is located in a specific volume of this collective plan and is considered to be a stand-alone document with approval sheets for each volume. They are:

Volume 1	General Introduction
Volume 2	Class 1, 2, and 3 Inservice Inspection (ISI) Examinations
Volume 3	Class 1, 2, ,and 3 Sketches
Volume 4	BWRVIP Vessel Internals
Volume 5	IWE Containment Examinations
Volume 6	Class 1, 2, and 3 Pressure Testing

Note: This plan does not cover Repair and Replacement Activities.

This Introduction also has several enclosures. These are:

Enclosure 1	Code Cases (with NRC caveats)
Enclosure 2	Relief Requests, Alternatives, and Exceptions to the Rule
Enclosure 3	NRC caveats for the use of the 2003 Addenda.
Enclosure 4	NRC Safety Evaluations

Life Extension

For the 4th Interval, in addition to the Code requirements, selected one-time examinations were committed to be performed as part of the life-extension process. Nuclear Licensing will submit a list of examinations which will be included in this document at a later date.

Background

Hatch Unit 1 (HNP-1) is a BWR-4 with a Construction Permit (CP) docket date of 9/30/69 and an operation date of 12/31/75.

Classification of Components

Per Appendix A of the HNP FSAR, some of the original fabrication Codes are provided below to show the user that there were numerous Codes used during the fabrication of HNP-1.

1. Reactor Vessel – Fabricated per ASME Section III - 1965 Edition and Addenda through Winter 1966. Code Cases included 1332-2, 1335, 336, 1338-3, 1339-2, and 1359-1.

2. Control Rod Drive Housings – Fabricated per ASME Section III – 1968 Edition and Code Case 1442.

3. Reactor Coolant (RC) Piping – The recirculation piping was purchased in October 1969. It required the use of USAS B31.1.0, 1967 edition with addenda and applicable code cases (Code Cases N-7, N-9, and N-10). In addition, the purchase specification required conformance to ASME Codes through winter 1968, addenda and applicable code cases. This equipment was designed to USAS B31.1.0, but the acceptance standards of USAS B31.7, 1969 edition and addenda were applied in lieu of the acceptance standards of ASA B31 Code Cases N-7, N-9, N-10, per 10 CFR 50.55a. No code case interpretations were used. The recirculation piping is analyzed to the requirements of the ASME Boiler and Pressure Vessel Code, Section III, 1983 Edition with Winter 1984 Addenda, including the effects due to operation at 2804 MWt and reactor operating pressure increase to 1060 psia.

4. High Pressure Coolant Injection (HPCI) Piping and Reactor Core Isolation Cooling (RCIC) Turbine Steam Piping – This piping was purchased in December 1969 and required the use of USAS B31.1.0, 1967 edition and applicable code cases. This piping was designed to B31.1.0, but the acceptance standards of USAS B31.7, 1969 edition and addenda were applied. B3l Code Case 74 was used for weld reinforcement limits.

5. Piping for Portions of the following systems within the RCPB. This piping was purchased in December 1969 and required the use of USAS B31.7 (Class 1), 1969 edition and applicable code cases. B31 Code Case 83 was used for weld reinforcement limits.

   • Feedwater.
   • Core spray (CS).
   • Residual heat removal (RHR).
   • Standby liquid control (SLC).
   • Reactor water cleanup (RWC).
   • CRD water return line.
   • Instrument lines.
   • Sample lines.

6. Main Steam Piping - The main steam piping was purchased in December 1969. This required the use of USAS B31.1.0, 1967 edition with addenda and applicable code cases (Code Cases N-7, N-9, and N-10). In addition, the purchase specification required conformance to ASME Codes through winter 1968 addenda and applicable code cases. This equipment was designed to USAS B31.1.0, but the acceptance standards of USAS B31l.7, 1969 edition with addenda were applied in lieu of the acceptance standards of American Standards Association (ASA) B31.1, Code Cases N-7, N-9, and N-10 per 10 CFR 50.55a. ASME Codes as stated above were also used. No code case interpretations were used

Per 10CFR 50.55a (g)(1) for a boiling or pressurized water-cooled nuclear power facility whose construction permit was issued before January 1, 1971, components (including supports) must meet the requirements of paragraphs 10CFR 50.55a (g)(4) and (g)(5) to the extent practical. Components which are part of the reactor coolant pressure boundary and their supports must meet the requirements applicable to components which are classified as ASME Code Class 1. Other safety-related pressure vessels, piping, pumps and valves, and their supports must meet the requirements applicable to components which are classified as ASME Code Class 2 or Class 3.

Because of the multiple design codes used on HNP-1, classifications as shown on the P&IDs may not be correct for ISI purposes. Instead, the classification of Class 1, 2, and 3 components for ISI purposes per 10CFR 50.55a (g)(1) is found in the ISI Boundary Diagrams, which are controlled by Design Modifications.

120-Month (10Year) ISI Intervals

Ten-year interval dates were established using the commercial operation date of 12/31/75 as the start of the first ten-year interval. Successive intervals then began on 12/31/85, 12/31/95, etc. HNP-1 is currently in the 4th ISI Interval (12/31/2005 through 12/31/2015) and is currently using the 2001 edition of ASME Section XI with addenda through 2003, as required by 10CFR 50.55a (g)(4)(ii). Note: The nomenclature used at HNP is for the start date and the end date to have the same day of the month.

Inspection Period dates using 3, 7, and 10 calendar years as established by Section XI Codes are:

1st Period 12/31/05 through 12/31/08
2nd Period 12/31/08 through 12/31/12
3rd Period 12/31/12 through 12/31/15

1st Period outages are 1R22A (2/06)*, 1R23 (2/08)
2nd Period outages are 1R24 (2/10) and 1R25 (2/12)
3rd Period outages are 1R26 (2/14) and 1R27 (2/16)**

*Per IWB-2412(b) the 3rd Period of the 3rd Interval was extended to coincide with the 1R22 plant outage. Additionally, 1st Period, 4th Interval examinations are scheduled for 1R22. For 3rd Interval examinations the outage is referred to as 1R22 and for 4th Interval examinations the outage is referred to as 1R22A. Per Interpretation XI-1-95-55, when applying IWB-2412 (and the outage overlaps two periods) exams may be performed to satisfy the requirements of both periods as long as any single examination is not credited to both periods.

**1R27 is actually in the 5th Interval. Per IWB-2412(b) the 3rd Period of the 4th Interval will be extended to coincide with the 1R27 outage. Additionally, 1st Period, 5th Interval examinations are scheduled for 1R27.

Class MC Implementation Schedule - Per SER dated April 25, 2005, SNC aligned the IWE inspection interval with the ISI inspection interval. Therefore, the current 10-year inspection interval begins 12/31/2005 and goes through 12/31/2015. All inspections required during the previous containment inspection interval were completed during the previous interval. Exams required to be performed on an interval frequency will be performed at the same point in time as would be required if the containment inspection interval had not changed. All other code required exams are required on a period basis. The change of inspection interval will have no impact on the scheduling of these exams.

Code Case N-598 is used at HNP-1 for determining the maximum percentages of examinations credited for each period in lieu of the requirements of Tables IWX-2412-1.

Period	Minimum Exams Completed	Maximum Exams Credited
1st Period	16%	50%
2nd Period	50%**	75%
3rd Period	100%	100%

** If the first period completion percentage is greater than 34%, then at least 16% of the required examinations must be performed during the 2nd period.

Operating Cycle Lengths Effect on the Scheduling of Examinations

IWB-2420 requires that the sequence of component examinations established during the first inspection interval shall be repeated during each successive inspection interval, to the extent practical. HNP-1 originally began operation using a 12 month operating cycle during the first inspection interval. Later in operation, HNP-1 began using an 18 month operating cycle, and beginning with refueling outage 1R20 (3/2002), HNP-1 began using a 24 month cycle. The lengthening of the operating cycle has eliminated refueling outages and, by necessity, examinations have been shifted.

The 3rd inservice inspection interval for Hatch Nuclear Plant Unit 1 ended on December 31, 2005. It is the intent of Southern Nuclear Company (SNC) to complete the remaining 3rd interval examinations during the 22nd refueling outage (1R22), which is currently scheduled to begin in February 2006 (just after the scheduled end of the 3rd interval). This is allowable per IWB-2412 of the 1989 Edition of Section XI (no addenda) and per IWA-2430 in more current Section XI Codes.

Additionally, SNC intends to begin 4th interval examinations during 1R22 (designated as 1R22A); therefore, both 3rd and 4th interval examinations will be performed. In no case, will an examination be performed that will be used to satisfy the requirements of both intervals; therefore, this is an acceptable practice.

Remaining third interval examinations are required to be performed to the 1989 Edition of Section XI (no addenda) and the 4th interval examinations are required to be performed to the 2001 Edition of ASME Section XI through the 2003 Addenda (with specific NRC limitations and modifications defined in 10 CFR 50.55a). To optimize the outage inservice inspection work activities, pursuant to 10 CFR 50.55a(g)(4)(iv), SNC has requested and received approval per ISI-CODE-1 to use the 2001 Edition of ASME Section XI through the 2003 Addenda for examinations and system tests, and repair/replacement activities performed during the 22nd refueling outage.

Re-Examination Due To Indication Notification Form Requirements

SNC uses an Indication Notification Form (INF) to document when components require evaluation to substantiate their integrity for their intended service. Because Code re-examinations are required during the next period after the INF is written, only those INFs written during the 3rd Period of the 3rd Interval are applicable for the 1st Period of the 4th Interval. As subsequent examinations are performed during later 4th Interval outages, this table will require updating.

INF	COMPONENT	PERIOD INF WRITTEN	ACTION	SCOPE EXPANSION
None in ISI Scope	-	1R21 -3rd	None Required	-

ENCLOSURE 1

CODE CASES

Code Cases

IWA-2420 requires that inspection plans include Code Cases proposed for use and the extent of their application. Those Code Cases acceptable for use by the NRC are listed in Regulatory Guide 1.147. The latest version of Regulatory Guide 1.147 approved for use by the NRC is published in 10 CFR 50.55a. The version of Regulatory Guide 1.147 published at the beginning of the 4th Interval in 10 CFR 50.55a is Revision 14. Therefore, at the beginning of the interval, only Revision 14 may be used.

During the 4th Interval the NRC will approve additional revisions of Regulatory Guide 1.147interval. These are the rules that must be followed:

- If a Code Case has already been implemented by HNP and a later version of the Code Case is incorporated by reference into 10 CFR 50.55a and listed Regulatory Guide 1.147 during the 4th interval, it is permissible to use either the later version or the previous version. *An exception to this provision would be the inclusion of a limitation or condition on the use of the Code Case which is necessary, for example, to enhance safety.*

- 10 CFR 50.55a requires that when HNP initially implements a Code Case, the most recent version of that Code Case as listed in Regulatory Guide 1.147 must be implemented.

- Code Cases may expire or be annulled because the provisions have been incorporated into the Code, the application for which it was specifically developed no longer exists, or experience has shown that an examination or testing method is no longer inadequate. After a Code Case is annulled and 10 CFR 50.55a and Regulatory Guide 1.147 are amended, HNP may not implement that Code Case for the first time. However, if HNP has implemented the Code Case prior to annulment HNP may continue to use that Code Case through the end of the 4th interval.

- Regulatory Guide 1.147 also contains Code Cases that are acceptable provided that they are used with the identified limitations or modifications, i.e., the Code Case is generally acceptable but the NRC has determined that the alternative requirements must be supplemented in order to provide an acceptable level of quality and safety. These caveats established by the NRC must be used when using the Code Case.

Table 1 lists all Section XI Code Cases that may be used by HNP during the 4th interval, without prior NRC approval. Code Cases currently used or considered for use at HNP are designated by a "Yes" in Column 3. Use of other Code Cases or revisions to Code Cases requires prior NRC approval per 10 CFR 50.55a(a)(3).

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-307-3 Revised Ultrasonic Examination Volume for Class 1 Bolting, Table IWB-2500-1, Examination Category B-G-1, When the Examinations Are Conducted from the End of the Bolt or Stud or from the Center-Drilled Hole	14	**YES**	ISI	
N-311 Alternative Examination of Outlet Nozzle on Secondary Side of Steam Generators.	14	**NO**	ISI	There are no Steam Generators at HNP.
N-322 Examination Requirements for Integrally Welded or Forged Attachments to Class 1 Piping at Containment Penetrations	14	**NO**	ISI	
N-323-1 Alternative Examination for Welded Attachments to Pressure Vessels	14	**YES**	ISI	
N-334 Examination Requirements for Integrally Welded or Forged Attachments to Class 2 Piping at Containment Penetrations	14	**NO**	ISI	
N-416-3 Alternative Pressure Test Requirements for Welded Repairs or Installation of Replacement Items by Welding, Class 1, 2, and 3.	14	**NO**	R/R	N-416-2 is included in the 2003 Addenda and does not require additional NDE per the 1992 Edition of Section III
N-432-1 Repair Welding Using Automatic or Machine Gas Tungsten-Arc Welding (GTAW) Temper Bead Technique		**NO**	R/R	SNC sites have not used temper bead welding and will probably not use in the future.
N-435-1 Alternative Examination Requirements for Vessels With Wall Thickness 2 in or less	14	**NO**	ISI	In 2003 Addenda
N-460 Alternative Examination Coverage for Class 1 and 2 Welds	14	**YES**	ISI	
N-471 Acoustic Emission for Successive Inspections	14	**NO**	ISI	

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-481 Alternative Examination Requirements for Cast Austenitic Pump Casings	14	**NO**	ISI	
N-485-1 Eddy Current Examination of Coated Ferritic Surfaces as an Alternative to Surface Examination	14	**NO**	ISI	
N-490-1 Alternative Vision Test Requirements for Nondestructive Examiners	14	**NO**	Certification	In 2003 Addenda
N-491-2 Rules for Examination of Class 1, 2, 3, and MC Component Supports	14	**NO**	IWE	Use 2003 Addenda
N-494-3 Pipe Specific Evaluation Procedures and Acceptance Criteria for Flaws in Class 1 Ferritic Piping that Exceed the Acceptance Standards of IWB-3514.2 and in Class 1 Austenitic Piping that Exceed the Acceptance Standards of IWB-3514.3	14	**YES**	Evaluation	May be used if flaws are detected
N-496-2 Helical Coil Threaded Inserts	14	**NO**	R/R	In 2003 addenda
N-498-4 Alternative Requirements for 10-Year System Hydrostatic Testing for Class 1, 2, and 3 Systems. *NRC Condition for use:* Prior to conducting the VT-2 of Class 2 and 3 components not required to operate during normal plant operation, a 10 minute holding time is required after attaining test pressure. Prior to conducting the VT-2 of Class 2 and 3 components required to operate during normal plant operation, no holding time is required, provided the system has been in operation for at least 4 hours for insulated components or 10 minutes for non-insulated components.	14	**NO**	Pressure Testing	Use 2003 addenda.

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-503 Limited Certification of Nondestructive Examination Personnel Note: Because of the statistical screening criteria used for Appendix VIII to Section XI qualifications, this Code Case is not applicable to Appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems	14	**NO**	Certification	Use 2003 addenda
N-504-2 Alternative Rules for Repair of Class 1, 2, and 3 Austenitic Stainless Steel Piping	14	**YES**	R/R	May use if needed.
N-508-2 Rotation of Serviced Snubbers and Pressure Relief Valves for the Purpose of Testing	14	**YES**	R/R	
N-513-1 Evaluation Criteria for Temporary Acceptance of Flaws in Class 3 Piping *NRC Condition for use*: (1) Specific safety factors in paragraph 4.0 must be satisfied. (2) Code Case N-513 may not be applied to: (a) Components other than pipe and tube (b) Leakage through a gasket (c) Threaded connections employing nonstructural seal welds for leakage prevention (through seal weld leakage is not a structural flaw; thread integrity must be maintained) (d) Degraded socket welds	14	**YES**	Evaluation	May use if needed.

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-516-3 Underwater Welding, Section XI *NRC Condition for use*: Licensees must obtain NRC approval in accordance with 10 CFR 5055a(a)(3) regarding the technique to be used in the weld repair or replacement of irradiated material underwater	14	**YES**	R/R	May use if needed.
N-517-1 Quality Assurance Program Requirements for Owners *NRC Condition for use:* The Owner's Quality Assurance (QA) Program that is approved under Appendix B to 10 CFR Part 50 must address the use of this Code Case and any unique QA requirements identified by the Code Case that are not contained in the owner's QA Program description. This would include the activities performed in accordance with this Code Case that are subject to monitoring by the ANI.	14	**YES**	R/R	May use if needed.
N-522 Pressure Testing of Containment Penetration Piping	14	**NO**	Pressure Testing	Use 2003 Addenda
N-523-2 Mechanical Clamping Devices for Class 2 and 3 Piping	14	**NO**	R/R	In 2003 Addenda
N-526 Alternative Requirements for Successive Inspections of Class 1 and 2 Vessels	14	**YES**	ISI	If subsurface flaws are detected this Code Case may be used.

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-528-1 Purchase, Exchange, or Transfer of Material Between Nuclear Plant Sites *NRC Condition for use*: The requirements of 10 CFR Part 21 are to be applied to the nuclear plant site supplying the material as well as to the nuclear plant site receiving the material that has been purchased, exchanged, or transferred between sites.	14	**YES**	R/R	May use if necessary.
N-532-1 Alternative Requirements to Repair and Replacement Documentation Requirements and Inservice Summary Report Preparation and Submission as Required by IWA-4000 and IWA-6000 *NRC Condition for use*: Code Case N-532-1 requires an Owner's Activity Report Form OAR-1 to be prepared and certified upon completion of each refueling outage. The OAR-1 forms must be submitted to the NRC within 90 days of the completion of the refueling outage	14	**YES**	R/R	May use if necessary.
N-533-1 Alternative Requirements for VT-2 Visual Examination of Class 1, 2, and 3 Insulated Pressure-Retaining Bolted Connections *NRC Condition for use:* Prior to conducting the VT-2 examination, the provisions of IWA-5213, "Test Condition Holding Times," 1989 Edition, are to be followed.	14	**YES**	R/R	May use if necessary.
N-534 Alternative Requirements for Pneumatic Pressure Testing	14	**NO**	Pressure Testing	In 2003 Addenda

Table 1
NRC Approved Code Cases

Code Cases	Rev	Used at HNP?	Applicability	Comments
N-537 Location of Ultrasonic Depth-Sizing Flaws, Section XI	14	**NO**	Appendix VIII	In 2003 Addenda
N-545 Alternative Requirements for Conduct of Performance Demonstration Detection Test of Reactor Vessel	14	**NO**	Appendix VIII	In 2003 Addenda
N-546 Alternative Requirements for Qualification of VT-2 Examination NRC Conditions for use: (1) Qualify examination personnel by test to demonstrate knowledge of Section XI and plant specific procedures for VT-2 visual examination (2) This code case is applicable only to the performance of VT-2 examinations and may not be applied to other VT-2 functions such as verifying the adequacy of procedures and training VT-2 personnel	14	**NO**	Certification	In 2003 Addenda

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-552 Alternative Methods - Qualification for Nozzle Inside Radius Section from the Outside Surface *NRC Conditions for use:* To achieve consistency with the 10 CFR 50.55a rule change published September 22, 1999 (64 FR 51370), incorporating Appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems," to Section XI, add the following to the specimen requirements: "At least 50 percent of the flaws in the demonstration test set must be cracks and the maximum mis-orientation must be demonstrated with cracks. Flaws in nozzles with bore diameters equal to or less than 4 inches may be notches. Add to detection criteria, "The number of false calls must not exceed three."	14	**YES**	Appendix VIII	
N-553-1 Inservice Eddy Current Surface Examination of Pressure Retaining Pipe Welds and Nozzle-to-Safe End Welds	14	**NO**	ISI	
N-554-2 Alternative Requirements for Reconciliation of Replacement Items and Addition of New Systems *NRC Conditions for use*: The component used for repair/replacement must be manufactured, procured, and controlled as a safety-related component under an NRC-approved Quality Assurance program meeting the requirements of Appendix B to 10 CFR Part 50	14	**YES**	R/R	May use. Most of the provisions of this code case are in 2003 Addenda.

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-557-1 In-Place Dry Annealing of a PWR Reactor Vessel *NRC Conditions for use:* The secondary stress allowable of 3Sm, shown in Figure 1 of the Code Case, must be applied to the entire primary plus secondary stress range during the anneal	14	**NO**	R/R	HNP is a BWR.
N-566-2 Corrective Action for Leakage Identified at Bolted Connections	14	**YES**	Pressure Testing	
N-567-1 Alternative Requirements for Class 1, 2, and 3 Replacement Components *NRC Conditions for use*: The component used for repair/replacement must have been manufactured, procured, and controlled as a safety-related component under an NRC-approved Quality Assurance program meeting the requirements of Appendix B to 10 CFR Part 50	14	**NO**	R/R	In 2003 Addenda
N-568 Alternative Examination Requirements for Welded Attachments *NRC Conditions for use:* This Code Case may only be used for examination of the accessible portions of lugs on piping where riser clamps (i.e., clamps on vertical runs of pipe) obstruct access to welded surfaces	14	**YES**	ISI	

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-569-1 Alternative Rules for Repair by Electrochemical Deposition of Class 1 and 2 Steam Generator Tubing *NRC Conditions for use:* Steam generator tube repair methods require prior NRC approval through the Tech Specs. This Code Case does not address certain aspects of this repair, e.g., the qualification of the inspection and plugging criteria necessary for staff approval of the repair method. In addition, if the user plans to "reconcile," as described in Footnote 2, the reconciliation is to be performed in accordance with IWA-4200 in the 1995 Edition, 1996 Addenda of ASME Section XI.	14	**NO**	R/R	HNP does not have Steam Generators.
N-573 Transfer of Procedure Qualification Records Between Owners	14	**NO**	R/R	In 2003 Addenda
N-576-1 Repair of Class 1 and 2 SB-163, UNS N06600 Steam Generator Tubing *NRC Conditions for use:* NOTES: Steam generator tube repair methods require prior NRC approval through the Technical Specifications. This Code Case does not address certain aspects of this repair, e.g., the qualification of inspection and plugging criteria necessary for staff approval of the repair method. In addition, if the user plans to "reconcile," as described in the footnote, the reconciliation is to be performed in accordance with IWA-4200 in the 1995 Edition, 1996 Addenda of ASME Section XI.	14	**NO**	R/R	HNP does not have Steam Generators.

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-583 Annual Training Alternative *NRC Conditions for use:* (1) Supplemental practice shall be performed on material or welds that contain cracks, or by analyzing prerecorded data from material or welds that contain cracks (2) The training must be completed no earlier than 6 months prior to performing ultrasonic examinations at a licensee's facility	14	**YES**	Appendix VIII	Use 2003 Addenda.
N-586 Alternative Additional Examination Requirements for Class 1, 2, and 3 Piping, Components, and Supports *NRC Conditions for use:* The engineering evaluations addressed under Item (a) and the additional examinations addressed under Item (b) shall be performed during this outage. If the additional examinations performed under Item (b) reveal indications exceeding the applicable acceptance criteria of Section XI, the engineering evaluations and the examinations shall be further extended to include additional evaluations and examinations at this outage.	14	**YES**	ISI	May be used for root cause scope expansion in lieu of Code requirements.
N-588 Attenuation to Reference Flaw Orientation of Appendix G for Circumferential Welds in reactor vessels.	14	**NO**		

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-592 ASNT Central Certification Program	14	**YES**	Certification	
N-593 Alternative Examination Requirements for Steam Generator Nozzle to Vessel Welds *NRC Conditions for use*: Essentially 100 percent (not less than 90 percent) of the examination volume A-B-C-D-E-F-G-H must be inspected.	14	**NO**	ISI	HNP does not have Steam Generators.

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-597-1 Requirements for Analytical Evaluation of Pipe Wall Thinning *NRC Conditions for use:* (1) Code Case must be supplemented by the provisions of EPRI Nuclear Safety Analysis Center Report 202L-R2, April 1999, "Recommendations for an Effective Flow Accelerated Corrosion Program," for developing the inspection requirements, the method of predicting the rate of wall thickness loss, and the value of the predicted remaining wall thickness. As used in NSAC-202L-R2, the terms "should" and "shall" have the same expectation of being completed. (2) Components affected by flow-accelerated corrosion to which this Code Case are applied must be repaired or replaced in accordance with the construction code of record and Owner's requirements or a later NRC approved edition of Section III of the ASME Code prior to the value of t_p reaching the allowable minimum wall thickness, t_{min}, as specified in -3622.1(a)(1) of this Code Case. Alternatively, use of the Code Case is subject to NRC review and approval. (3) For Class 1 piping not meeting the criteria of -3221, the use of evaluation methods and criteria is subject to NRC review and approval. (4) For those components that do not require immediate repair or replacement, the rate of wall thickness loss is to be used to determine a suitable inspection frequency so that repair or replacement occurs prior to reaching allowable minimum wall thickness, t_{min}. (5) For corrosion phenomenon other than flow accelerated corrosion, use of the Code Case is subject to NRC review and approval. Inspection plans and wall thinning rates may be difficult to justify for certain degradation mechanisms such as MIC and pitting	14	**NO**	Evaluation	

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-598 Alternative Requirements to Required Percentages of Examinations	14	**YES**	ISI	
N-599 Alternatives to Qualification of Nondestructive Examination Personnel for Inservice Inspection of Metal (Class MC) and Concrete (Class CC) Containments *NRC Conditions for use:* This Code Case may not be used when a licensee updates to the 1992 or later Edition of Section XI that requires the use of ANSI/ASNT CP-189, "Standard for Qualification and Certification of Nondestructive Testing Personnel	14	**NO**	Certification	NA to later editions of the Code.
N-600 Transfer of Welder, Welding Operator, Brazer, and Brazing Operator Qualifications Between Owners	14	**NO**	R/R	May be used if necessary.
N-601 Extent and Frequency of VT-3 Visual Examination for Inservice Inspection of Metal Containments	14	**NO**	IWE	
N-603 Alternative to the Requirements of IWL-2421, Sites with Two Plants	14	**NO**	IWL	HNP does not have a concrete containment.
N-604 Alternative to Bolt Torque or Tension Test Requirements of Table IWE-2500-1, Category E-G, Item E8.20	14	**NO**	IWE	
N-605 Alternative to the Requirements of IWE-2500(b) for Augmented Examination of Surface Areas	14	**NO**	IWE	

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-606-1 Similar and Dissimilar Metal Welding Using Ambient Temperature Machine GTAW Temper Bead Technique for BWR CRD Housing/Stub Tube Repairs *NRC Conditions for use*: Prior to welding, an examination or verification must be performed to ensure proper preparation of the base metal, and that the surface is properly contoured so that an acceptable weld can be produced. The surfaces to be welded, and surfaces adjacent to the weld, are to be free from contaminants, such as, rust, moisture, grease, and other foreign material or any other condition that would prevent proper welding and adversely affect the quality or strength of the weld. This verification is to be required in the welding procedures.	14	**NO**	R/R	Not used by SNC.
N-609 Alternative Requirements to Stress-Based Selection Criteria for Category B-J Welds	14	**NO**	ISI	Guidance is used.
N-613-1 Ultrasonic Examination of Penetration Nozzles in Vessels, Category B-D, Item Nos. B3.10 and B3.90, Reactor Nozzle-to-Vessel Welds, Figs. IWB-2500-7(a), (b), and (c).	14	**YES**	ISI	

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-616 Alternative Requirements for VT-2 Visual Examination of Classes 1, 2, 3 Insulated Pressure Retaining Bolted Connections *NRC Conditions for use*: (1) Insulation must be removed for VT-2 examination during the system pressure test for any 17-4 PH stainless steel of 410 stainless steel stud or bolt aged at a temperature below 1100^0F or with hardness above R_C30. (2) For A-286 stainless steel studs or bolts, the preload must be verified to be below 100 KSI or the thermal insulation must be removed and the joint visually examined. (3) Prior to conducting the VT-2 of Class 2 and 3 components not required to operate during normal plant operation, a 10 minute holding time is required after attaining test pressure. Prior to conducting the VT-2 of Class 2 and 3 components required to operate during normal plant operation, no holding time is required, provided the system has been in operation for at least 4 hours for insulated components or 10 minutes for non-insulated components.	14	**NO**	Pressure Testing	
N-617 Alternative Examination Distribution Requirements for Table IWC-2500-1, Examination Category C-G, Pressure Retaining Welds in Pumps and Valves	14	**NO**	ISI	HNP does not have Class 3 welds in pumps and valves.

Table 1
NRC Approved Code Cases

Code Cases	Rev	Used at HNP?	Applicability	Comments
N-619 Alternative Requirements for Nozzle Inner Radius Inspections for Class 1 Pressurizer and Steam Generator Nozzles *NRC Conditions for use*: In lieu of a UT examination, licensees may perform a visual examination with enhanced magnification that has a resolution sensitivity to detect a 1-mil width wire or crack, utilizing the allowable flaw length criteria of Table IWB-3512-1 with limiting assumptions on the flaw aspect ratio. The provisions of Table IWB-2500-1, Examination Category B-D, continue to apply except that, in place of examination volumes, the surfaces to be examined are the external surfaces shown in the figures applicable to this table.	14	**NO**	ISI	HNP does not have Steam Generators.
N-623 Deferral of Inspections of Shell-to-Flange and Head-to-Flange Welds of a Reactor Vessel	14	**NO**	ISI	
N-624 Successive Inspections	14	**YES**	ISI	
N-629 Use of Fracture Toughness Test Data to Establish Reference Temperature for Pressure Retaining Materials	14	**NO**	-	
N-638-1 Similar and Dissimilar Metal Welding Using Ambient Temperature Machine GTAW Temper Bead Technique *NRC Conditions for use*: UT examinations shall be performed with personnel and procedures qualified for the repaired volume and qualified by demonstration using representative samples which contain construction type flaws. The acceptance criteria of NB-5330 in the 1989 Edition through the 2000 Addenda of Section III apply to all flaws identified within the repaired volume.	14	**NO**	R/R	Not used by SNC.

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-639 Alternative Calibration Block Material, Section XI *NRC Conditions for use*: Chemical ranges of the calibration block may vary from the materials specification if: (1) the calibration block material is produced under an accepted industry specification or standard, and (2) the phase and grain shape are maintained in the same ranges produced by the thermal process required by the material specification	14	**YES**	ISI	
N-640 Alternative Reference Fracture Toughness for Development of P-T Limit Curves	14	**NO**	-	
N-641 Alternative Pressure-Temperature Relationship and Low Temperature Overpressure Protection System Requirements	14	**NO**	-	
N-643 Fatigue Crack Growth Rate Curves for Ferritic Steels in PWR Water Environment	14	**NO**	-	
N-647 Alternative to Augmented Examination Requirements of IWE-2500 NRC Conditions for use: A VT-1 examination is to be used in lieu of the "detailed visual examination." (Note: Draft Regulatory Guide DG-1070, "Sampling Plans Used for Dedicating Simple Metallic Commercial Grade Items for Use in Nuclear Power Plants," is being developed to provide acceptable guidelines for sampling criteria.)	14	**NO**	IWE	

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
N-648-1 Alternative Requirements for Inner Radius Examination of Class 1 Reactor Vessel Nozzles NRC Conditions for use: In place of a UT examination, licensees may perform a visual examination with enhanced magnification that has a resolution sensitivity to detect a 1-mil width wire or crack, utilizing the allowable flaw length criteria of Table IWB-3512-1 with limiting assumptions on the flaw aspect ratio. The provisions of Table IWB-2500-1, Examination Category B-D, continue to apply except that, in place of examination volumes, the surfaces to be examined are the external surfaces shown in the figures applicable to this table.	14	**YES**	ISI	
N-649 Alternative Requirements for IWE-5240 Visual Examination	14	**NO**	IWE	
N-651 Ferritic and Dissimilar Metal Welding Using SMAW Temper Bead Technique Without Removing the Weld Bead Crown for the First Layer.	14	**NO**	R/R	Temper Bead Welding
N-652 Alternative Requirements to Categorize B-G-1, B-G-2, and C-D Bolting Exam Methods and Selection Criteria.	14	**NO**	ISI	Use 2003 Addenda.
N-658 Qualification Requirements for UT Examination of Wrought Austenitic Piping Welds.	14	**YES**	Appendix VIII	
N-660 Risk-Informed Safety Classification for Use in Risk-Informed Repair/Replacement Activities *NRC Conditions for use:*	14	**NO**	ISI	HNP does not use Risk-Informed Safety Classifications.

Table 1 NRC Approved Code Cases				
Code Cases	**Rev**	**Used at HNP?**	**Applicability**	**Comments**
The Code Case must be applied only to ASME Code Class 2 and 3, and non-Code Class pressure retaining components and their associated supports.				
N-661 Alternative Requirements for Wall Thickness Restoration of Class 2 and 3 Carbon Steel Piping for Raw Water Service *NRC Conditions for use:* (a) If the root cause of the degradation has not been determined, the repair is only acceptable for one cycle. (b) Weld overlay repair of an area can only be performed once in the same location. (c) When through-wall repairs are made by welding on surfaces that are wet are exposed to water, the weld overlay repair is only acceptable until the next refueling outage.	14	**NO**	R/R	
N-662 Alternate Repair/Replacement Requirements for Items Classified in Accordance with Risk-Informed Processes. *NRC Conditions for use:* The Code Case must be applied only to ASME Code Class 2 and 3, and non-Code Class pressure retaining components and their associated supports.	14	**NO**	R/R	
N-663 Alternative Examination Requirements for Class 1 and 2 Surface Examinations	14	**YES**	ISI	
N-664 Performance Demonstration Requirements for Exam of Unclad RPV Welds, Excluding Flange Welds	14	**YES**	Appendix VIII	
N-695 Qualification Requirements for Dissimilar Metal Piping Welds	14	**YES**	Appendix VIII	

ENCLOSURE 2

ALTERNATIVE, RELIEF REQUESTS,

AND

EXCEPTIONS TO THE RULE

LISTING OF RELIEF REQUESTS, ALTERNATIVES, AND EXEMPTIONS

Number	Description
----------	Allows alignment of MC interval with ISI interval. **Approved by NRC SE dated 4/25/05.**.
ISI-ALT-1	Allows use of PDI for Category B-A, reactor pressure vessel (RPV) shell-to-flange weld (Item B1.30) and head-to-flange weld (Item B1.40). **Approved by NRC SE dated 1/3/06**.
ISI-ALT-2	Allows the continuation of the marking system used during the 3rd Interval. **Approved by NRC SE dated 11/09/05.**
ISI-ALT-3	Allows continuation of VIP-075 in lieu of Code scheduling requirements. **Approved by NRC SE dated 12/22/05.**
ISI-ALT-4	This alternative is a re-submittal of NRC approved 3rd interval relief request RR-36, which allowed SNC to use the Performance Demonstration Initiative (PDI) Program in lieu of Section XI, Appendix VIII, Supplement 11 requirements. **Approved by NRC SE dated 11/09/05.**
ISI-ALT-5	Allow performance of 10-year leakage test with drain line valves in closed position. **Approved by NRC SE dated 11/09/05.**
ISI-ALT-6	This alternative is a re-submittal of applicable portions of NRC approved 3rd interval relief request GR-03-01, which allows SNC to use the Performance Demonstration Initiative (PDI) Program in lieu of Section XI, Appendix VIII requirements. GR-03-01 was based on the 1995 Edition with 1996 Addenda of Supplement 10 while this new 4th interval request is based on the 2001 Edition of Supplement 10. **Approved by NRC SE dated 11/09/05.**
ISI-ALT-7	Allows the performance of an above ground visual examination in lieu of a pressure decay or change in flow test for buried piping. **Awaiting NRC approval.**
ISI-EX-1	The 10CFR50.55a exemption allows a General Visual in lieu of performing a VT-3 of the non-submerged portion of the vent system. **Approved by NRC letter dated 1/06/06.**

REQUEST TO ALIGN MC INTERVAL WITH ISI INTERVAL

Docket Nos.: 50-321 50-348 50-424 NL-04-1475
50-366 50-364 50-425

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Joseph M. Farley Nuclear Plant
Edwin I. Hatch Nuclear Plant
Vogtle Electric Generating Plant
10 CFR 50.55a Exemption Request
Alignment of IWE / IWL Inspection Program Interval with
Corresponding Plant ISI Program Intervals

Ladies and Gentlemen:

In accordance with the provisions of 10 CFR 50.55a(a)(3), Southern Nuclear Operating Company (SNC) is requesting an exemption from the requirements of 10 CFR 50.55a(b)(2)(vi) which requires successive 120-month inspection interval updates in accordance with 10 CFR 50.55a(g)(4)(ii) subject to Commission approval as provided in 10 CFR 50.55a(g)(4)(iv).

On August 8, 1996, the NRC issued a rulemaking (61 FR 41303) requiring licensees to implement the first period of IWE and IWL inservice examinations by September 9, 2001. Therefore, using Table IWE-2412-1 of the 1992 Edition with the 1992 Addenda of the ASME Section XI Code, the current Class MC and Class CC interval start and end dates for all SNC nuclear plants were determined to be September 10, 1998, and September 9, 2008, respectively. These start and end dates do not coincide with any of SNC's Class 1, 2, and 3 inservice inspection (ISI) program intervals which are January 1, 1996, through December 31, 2005, for the Edwin I. Hatch Nuclear Plant (HNP) Units 1 and 2; May 31, 1997, through May 30, 2007, for the Vogtle Electric Generating Plant (VEGP) Units 1 and 2; December 1, 1997, through November 30, 2007, for the Joseph M. Farley Nuclear Plant (FNP) Unit 1; and July 30, 2001, through July 20, 2011 for FNP Unit 2. With this request, SNC proposes to change each of the current HNP Class MC and VEGP Class MC and Class CC inspection intervals to be consistent with the corresponding plant's Class 1, 2, and 3 ISI program interval. These Class MC and Class CC inspection program interval updates will be performed concurrently with the next Class 1, 2, and 3 ISI program interval update of each corresponding plant. In addition, SNC proposes to change each of the FNP Class MC and Class CC inspection intervals to be consistent with the FNP Unit 1 Class 1, 2, and 3 ISI program interval. These Class MC and Class CC inspection program interval updates will be performed concurrently with the next Class 1, 2, and 3 ISI program interval update of FNP Unit 1. These changes will result in a reduction in length of each plant's first and current Class MC and Class CC inspection program interval. This submittal requests NRC approval as an alternative to the regulations pursuant to 10 CFR 50.55a(a)(3)(ii) in that compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

REQUEST TO ALIGN MC INTERVAL WITH ISI INTERVAL

In Federal Register Notice, Volume 67, Number 187, dated September 26, 2002, the NRC stated that they agreed with licensee comments that the final rule, dated August 8, 1996, creates a hardship when implementing 120-month interval updates required by 10 CFR 50.55a(g)(4)(ii). The final rule required licensees to implement an ISI program for Class MC and Class CC components using the 1992 Edition with the 1992 Addenda of IWE and IWL. Consequently, the schedule for 120-month interval updates for the ISI of Class MC and Class CC components and the ISI of Class 1, 2, and 3 components does not coincide. This creates a hardship because ISI programs are required to maintain two separate editions and addenda of Section XI, i.e., one edition applicable to the ISI of Class MC and Class CC components and another edition and addenda applicable to the ISI of Class 1, 2, and 3 components. The NRC also stated in the Federal Register Notice that licensees may wish to synchronize 120-month interval updates such that the same edition and addenda of Section XI apply to the ISI of Class MC and Class CC components and the ISI of Class 1, 2, and 3 components. It was further indicated that licensees wishing to synchronize their 120-month intervals may submit a request in accordance with 10 CFR 50.55a(a)(3) to obtain authorization to extend or reduce 120-month intervals.

Southern Nuclear Operating Company agrees with the NRC assessment and it is SNC's position that concurrently updating the IWE and IWL inspection programs with the ISI program for each plant will result in a more comprehensive examination being achieved, enhancing the possibility of detecting a generic problem and will reduce the costs involved with maintaining two separate code versions should the use of different code versions be required. In addition, use of the same edition and addenda of the code for each program would help prevent possible errors associated with maintaining separate programs with different requirements.

The remaining examinations for each of the current IWE and IWL inspection program intervals will correspond with the method required by the edition and addenda of the ASME Section XI Code adopted by the applicable SNC plant's updated ISI program and will be performed using the requirements of this edition and addenda in the sequence previously established by the current IWE and IWL inspection program interval. Where the requirements of the latest edition and addenda of the ASME Section XI Code adopted by the ISI program cannot be met, relief will be requested from the NRC through the formal relief request process addressed in 10 CFR 50.55a. Any such relief requests will be submitted to the NRC in the updated ISI programs for each plant.

Southern Nuclear Operating Company requests NRC concurrence with SNC's request to align each of the IWE / IWL inspection program intervals with the corresponding plant's ISI 120-month program interval. The proposed early updated IWE / IWL inspection program intervals are January 1, 2006, through December 31, 2015, for HNP Units 1 and 2; May 31, 2007, through May 30, 2017, for VEGP Units 1 and 2; and December 1, 2007, through November 30, 2017, for FNP Units 1 and 2. The early updates will be documented in each plant's IWE and IWL Programs. NRC approval is requested by October 15, 2005.

REQUEST TO ALIGN MC INTERVAL WITH ISI INTERVAL

This letter contains no NRC commitments. If you have any questions, please advise.

Sincerely,

Jeffrey T. Gasser

JTG/DRG/daj

cc: Southern Nuclear Operating Company
Mr. L. M. Stinson, Vice President – Plant Farley
Mr. H. L. Sumner, Jr., Vice President – Plant Hatch
Mr. D. E. Grissette, General Manager – Plant Farley
Mr. G. R. Frederick, General Manager – Plant Hatch
Mr. W. F. Kitchens, General Manager – Plant Vogtle
RType: CFA04.054; CHA02.004; CVC7000; LC# 14135

U. S. Nuclear Regulatory Commission
Dr. W. D. Travers, Regional Administrator
Mr. S. E. Peters, NRR Project Manager – Farley
Mr. C. Gratton, NRR Project Manager – Hatch
Mr. C. Gratton, NRR Project Manager – Vogtle
Mr. C. A. Patterson, Senior Resident Inspector – Farley
Mr. D. S. Simpkins, Senior Resident Inspector – Hatch
Mr. G. J. McCoy, Senior Resident Inspector – Vogtle

Note: Approved by NRC SE dated 4/25/05.

SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-1, VERSION 3.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Plant Site-Unit: Edwin I. Hatch Nuclear Plant-Units 1 and 2.

Interval-Interval Dates: 4th ISI Interval extending from January 1, 2006 through December 31, 2015.

Requested Date for Approval and Basis: Approval is requested by December 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006).

ASME Code Components Affected: Category B-A, reactor pressure vessel (RPV) shell-to-flange weld C-1 (Item B1.30) and head-to-flange weld HC-2 (Item B1.40).

Applicable Code Edition and Addenda: Fourth interval examinations will be performed per the requirements of ASME Section XI, 2001 Edition through the 2003 Addenda, as amended by 10 CFR 50.55a.

The NRC amended the use of the 2001 Edition through the 2003 Addenda in paragraph 10 CFR 50.55a(b)(2)(xxiv), which states, "*The use of Appendix VIII and the supplements to Appendix VIII and Article I-3000 of Section XI of the ASME BPV Code, 2002 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, is prohibited*." Therefore, when referencing Appendix VIII, licensees are limited to using the 2001 Code; however, other references apply to the 2001 Edition through the 2003 Addenda.

Applicable Code Requirements: These welds are currently required to be examined per Appendix I, I-2100(b) of the 2001 Edition of ASME Section XI through the 2003 Addenda, which requires that the examination be conducted in accordance with Article 4 of Section V, except that alternative beam angles may be used. Additionally, there is a requirement to supplement the Section V examinations with Table I-2000-1. Section T-472.1 of the 2001 Edition of Section V with the 2003 Addenda defines the ultrasonic scanning criteria for the examination of reactor vessel-to-flange welds and closure head-to-flange welds. These are:

- (T-472.1.1) The beam angle shall be appropriate for the configuration being examined and that the beam angle shall be capable of detecting the calibration reflectors, over the required angle beam paths.
- (T472.1.2) When scanning for reflectors parallel to the weld seam, the angle beam shall be directed at approximate right angles to the weld axis from both sides of the weld (i.e., from two directions) on the same surface when possible. The search unit shall be manipulated so that the ultrasonic energy passes through the required volume of weld and adjacent base material.
- (T-472.1.3) When scanning for reflectors transverse (perpendicular) to the weld seam, the angle beam shall be directed essentially parallel to the weld axis. The search unit shall be manipulated so that the ultrasonic energy passes through the required volume of weld and adjacent base material. The search unit shall be rotated 180 degrees and the examination repeated.

**SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-1, VERSION 3.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)**

- (T-472.2) Welds that cannot be fully examined from two directions using the angle beam techniques shall also be examined if possible with a straight beam technique.

- (T-472.3) Welds that cannot be examined from at least one side (edge) using the angle beam technique shall be noted in the examination report. For flange welds, the weld may be examined with a straight beam or low angle longitudinal waves from the flange surface provided the examination volume can be covered.

Reason for Request:

10 CFR 50.55a required that ASME Section XI, Appendix VIII, Supplement 4, "Qualification Requirements For The Clad/Base Metal Interface of Reactor Vessel," and Supplement 6, "Qualification Requirements For Reactor Vessel Welds Other Than Clad/Base Metal Interface," be implemented for most of the RPV welds by November 22, 2000. However, the RPV shell-to-flange weld and head-to-flange weld examinations were not included in this requirement. The use of this alternative will allow the use of Performance Demonstration Initiative (PDI) qualified procedures to perform the examination of these welds in lieu of Article 4 of Section V requirements.

Proposed Alternative and Basis for Use:

Proposed Alternative

In lieu of the Article 4 of Section 5 angle beam examination, SNC proposes to use an angle beam examination that will be performed using examination procedures, personnel, and equipment qualified in accordance with Appendix VIII, Supplements 4 and 6, as amended by the conditions set forth in 10 CFR 50.55a. Examination of each weld is described below: (See Figure 1)

C-1 - Vessel-To-Flange Weld

The Section XI required examination volume will be scanned for flaws from the outside of the vessel using a 60-degree refracted longitudinal wave; however, the curvature of the flange surface above the weld will limit transducer travel such that examinations can only be performed from the shell side. Additionally, the refueling bellows prevents examinations from being performed from the vertical portion of the flange surface located directly above the curvature. The projected single side coverage for flaws located parallel to the weld is shown in Figure 2.

Since the examination will be from a single side, the requirements of 10 CFR 50.55a(b)(2)(xvi)(A) apply. Therefore, examinations will be conducted with equipment, procedures, and personnel that have demonstrated proficiency with single side examinations. (To demonstrate equivalency to two sided examinations, the demonstration must be performed to the requirements of Appendix VIII as modified by this paragraph and 10 CFR 50.55a(b)(2)(xv) (B) through (G), on specimens containing flaws with non-optimum sound energy reflecting characteristics or flaws similar to those in the vessel being examined). Examination of the Section XI required volume will be performed as follows:

Per 10 CFR 50.55a(b)(2)(xv)(G)(*1*), the clad to base metal interface, including a minimum of 15 percent T (measured from the clad to base metal interface), shall be examined from four orthogonal directions using procedures and personnel qualified in accordance with Supplement 4 to Appendix VIII.

SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-1, VERSION 3.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Per 10 CFR 50.55a(b)(2)(xv)(G)(*2*), if the clad-to-base-metal-interface procedure demonstrates detectability of flaws with a tilt angle relative to the weld centerline of at least 45 degrees, the remainder of the examination volume is considered fully examined if coverage is obtained in one parallel and one perpendicular direction. This must be accomplished using a procedure and personnel qualified for single-side examination in accordance with Supplement 6. Subsequent examinations of this volume may be performed using examination techniques qualified for a tilt angle of at least 10 degrees.

Per 10 CFR 50.55a(b)(2)(xv)(G)(*3*), the examination volume not addressed by 50.55a(b)(2)(xv)(G)(*1*) is considered fully examined if coverage is obtained in one parallel and one perpendicular direction, using a procedure and personnel qualified for single sided examination when the provisions of § 50.55a(b)(2)(xv)(G)(*2*) are met.

HC-2 – Closure Head-To-Flange Weld

The Section XI required examination volume will be scanned for flaws using a 60-degree refracted longitudinal wave. Examinations will be performed from both the head and flange side of the weld; however, the short distance from the weld to the flange limits the examination on the flange side of weld. Scanning will be performed in four orthogonal directions to the extent practical with the projected coverage for flaws located parallel to the weld shown in Figure 3. This weld is not clad; therefore, the examination of the Section XI required volume will be performed using procedures, personnel, and equipment qualified through the PDI process in accordance with Appendix VIII, Supplement 6, as modified by 10 CFR 50.55a(b)(2)(xv)(D), 10 CFR 50.55a(b)(2)(xv)(E), and other applicable paragraphs.

Basis for Use

Appendix VIII requirements were developed to ensure the effectiveness of UT examinations within the nuclear industry by means of a rigorous, item-specific performance demonstration. The performance demonstration (through PDI) was conducted on RPV mockups containing flaws of various size and allocations. The demonstration established the capability of equipment, procedures, and personnel to find flaws that could be detrimental to the integrity of the RPV. The performance demonstration showed that for the detection of flaws in RPV welds, the UT techniques were equal to or surpassed the requirements of the Section V, Article 4 of the ASME Code. Additionally, the PDI qualified sizing techniques is considered to be more accurate than the techniques used in Article 4 of Section V.

Although Appendix VIII is not required for the RPV shell-to-flange weld and RPV head-to-flange weld, the use of Appendix VIII criteria for detection and sizing of flaws in these welds will be equal to or will exceed the requirements established by Article 4 of Section V. Therefore, the use of this proposed alternative will continue to provide an acceptable level of quality and safety, and approval is requested pursuant to 10 CFR 50.55a(a)(3)(i).

Duration of Proposed Alternative:

The proposed alternative is applicable for the 4th Inservice Inspection Interval, extending from January 1, 2006 through December 31, 2015.

SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-1, VERSION 3.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Precedents: NA

References: None

Status: **Approved by NRC SE dated 1/3/06.**

SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-2, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(ii)

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2
Interval-Interval Dates:	4th ISI Interval extending from January 1, 2006 through December 31, 2015.
Requested Date for Approval:	Approval is requested by December 1, 2005 to support 4th interval examinations performed during 1R22 (scheduled for February 2005).
ASME Code Components Affected:	All welds and areas in the ISI Program that are subject to surface or volumetric examination.
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda.
Applicable Code Requirements:	IWA-2610 requires that a reference system be established for all welds and areas subject to surface or volumetric examination. The system shall permit identification of each weld, location of each weld centerline, and designation of regular intervals along the length of the weld.
Reason for Request:	This alternative is a re-submittal of NRC approved 3rd interval relief request RR-10. RR-10 was based on the 1989 Edition of Section XI (no addenda) while this 4th interval request is based on the 2001 Edition through the 2003 Addenda; however, there have been no substantive changes to the Code requirements or to the *Basis for Use* which would alter the previous NRC Safety Evaluation conclusions. See References for dates and TAC numbers associated with RR-10.
Proposed Alternative and Basis for Use:	It is proposed that in lieu of marking all of the welds as required by the Code, each weld undergoing a surface or volumetric examination will receive the Code required reference markings and identification, as the examinations are being performed. For an operating plant, establishing a weld reference system for all welds and areas subject to surface or volumetric examination is a major effort and, in some cases, is prohibitive due to inaccessibility and/or high radiation areas. To establish a comprehensive weld reference system for all of the welds and areas subject to volumetric or surface examinations in accordance with the Code requirements would require many man-hours of work and many man-rem of exposure to locate the welds, remove the insulation, mark the welds, and re-install the insulation. Since only a small percentage of welds are normally examined, the majority of the welds that would be marked per the Code requirement would never receive an inservice examination. To require the marking all of the welds and areas subject to surface or volumetric examination in an operating plant environment, even though most will not require examination, would result in a hardship without a compensating increase in quality and safety. Marking the welds that are receiving an examination will provide assurance, that when performing subsequent examinations, that the correct weld is being re-examined and that recorded indications can be correlated with previous data. Not marking the welds which are not

SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-2, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(ii)

receiving examinations, will have little, if any, affect on safety and quality at Plant Hatch; therefore, approval of this request per 10 CFR 50.55a(a)(3)(ii) should be granted.

Duration of Proposed Alternative: The proposed alternative is applicable for the 4th Inservice Inspection Interval (January 1, 2006 through December 31, 2015).

Precedents: This request was approved for the 3rd Inservice Inspection Interval as RR-10.

References: SNC letter dated October 17, 1995 submitting RR-10.

RR-10 was approved for 3rd Interval by NRC TAC number M93918 and M93919 dated June 16, 1997.

Status: **Approved by NRC SE date 11/09/05.**

SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-3, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2
Interval-Interval Dates:	4th ISI Interval extending from January 1, 2006 through December 31, 2015.
Requested Date for Approval:	Approval is requested by December 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006).
ASME Code Components Affected:	All high alloy steel welds (e.g., stainless) and high nickel alloy welds (e.g., Inconel) covered by the augmented requirements of NUREG-0313 and Generic Letter 88-01.
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda.
Applicable Code Requirements:	IWB-2412 requires examinations to be completed in accordance with Table IWB-2412-1, except for the examinations that may be deferred until the end of the inspection interval. Table IWB-2412-1 defines a minimum and maximum number of examinations to be performed each inspection period. IWC-2430 provides scope expansion rules when flaws exceed the acceptance standards of Table IWC-3410-1. IWB-2500 requires components to be examined as specified in Table IWB-2500-1. The *Extent and Frequency of Examination* requires that all Category B-F welds be examined and that a minimum of 25% of Category B-J welds be examined over the ten-year ISI interval.
Reason for Request:	This alternative is a re-submittal of NRC approved 3rd interval relief request RR-39. RR-39 was based on the 1989 Edition of Section XI (no addenda) while this 4th interval request is based on the 2001 Edition through the 2003 Addenda; however, there have been no substantive changes to the Code requirements or to the *Basis for Use* which would alter the previous NRC Safety Evaluation conclusions. See References for dates and TAC numbers associated with RR-39.
Proposed Alternative and Basis for Use:	It is proposed to use the schedules and frequencies specified in the BWRVIP-75 (Technical Basis for Revisions to Generic Letter 88-01 Inspection Schedules) in lieu of the above listed Code requirements when examining high alloy steel welds and high nickel alloy welds. The *Examination Method* listed in Table IWB-2500-1 is not affected by this request. By letter dated May 14, 2002 the NRC issued their Final Safety Evaluation of BWRVIP-75. In that Safety Evaluation, the NRC staff concluded that, "licensee implementation of the guidelines of BWRVIP-75 report, as modified, will provide an acceptable level of quality for inspection of the safety-related components." Additionally, the NRC concluded that, "the revised BWRVIP-75 guidance is acceptable for licensee referencing at the technical basis for relief from, or as an alternative to, the ASME Code and 10 CFR 50.55a, in order to use the sample schedules and

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frequencies specified in the revised BWRVIP-75 report that are less than those required by the ASME Code."

SNC concludes that the use of BWRVIP-75 as defined by the NRC Final Safety Evaluation in lieu of the above specified requirements, will provide an acceptable level of quality and safety. Therefore, approval should be granted pursuant to 10 CFR 50.55a(a)(3)(i).

Duration of Proposed Alternative: The proposed alternative is applicable for the 4th Inservice Inspection Interval.

Precedents: This request was approved for the 3rd Inservice Inspection Interval as RR-39.

References: SNC letter dated March 29, 2004 submitting RR-39.

Approval for RR-39 was granted for the 3rd interval by NRC letter dated January 7, 2005 - TAC numbers MC2383 and MC2384.

Status: **Approved by NRC SE dated 12/22/05**.

SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-4, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2.
Interval-Interval Dates:	4th ISI Interval extending from January 1, 2006 through December 31, 2015.
Requested Date for Approval and Basis	Approval is requested by December 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006).
ASME Code Components Affected:	Class 1, Pressure Retaining Welds in Piping, subject to ASME Section XI, Appendix VIII, Supplement 11, examination (weld overlay examinations).
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda is the overall 4th Interval Code of Record. However, 10 CFR 50.55a(b)(2)(xxiv) prohibits the use of Appendix VIII and Supplements to Appendix VIII of the 2002 Addenda through the 2003 Addenda; therefore, the 2001 Edition is used.
Applicable Code Requirements:	The Code requirements for which relief is requested are all contained within Appendix VIII, Supplement 11. For example, paragraph 1.1(d)(1), requires that all base metal flaws be cracks. Paragraph 1.1(e)(1) requires that at least 20% but less than 40% of the flaws shall be oriented within $\pm$20 degrees of the pipe axial direction. Paragraph 1.1(e)(1) also requires that the rules of IWA-3300 shall be used to determine whether closely spaced flaws should be treated as single or multiple flaws. Paragraph 1.1(e)(2)(a)(1) requires that a base grading unit shall include at least 3 in. of the length of the overlaid weld. Paragraph 1.1(e)(2)(b)(1) requires that a overlay grading unit shall include the overlay material and the base metal-to-overlay interface of at least 6 sq. in. The overlay grading unit shall be rectangular, with minimum dimensions of 2 in. Paragraph 3.2(b) requires that all extensions of base metal cracking into the overlay material by at least 0.1 in. are reported as being intrusions into the overlay material.
Reason for Request:	This alternative is a re-submittal of NRC approved 3rd interval relief request RR-36, which allowed SNC to use the Performance Demonstration Initiative (PDI) Program in lieu of Section XI, Appendix VIII, Supplement 11 requirements. RR-36 was based on the 1995 Edition with 1996 Addenda of Supplement 11 while this 4th interval request is based on the 2001 Edition of Supplement 11. However, a review of two Code indicated that there are no substantive differences between them. Since RR-36 was submitted to the NRC, several changes have been made to the PDI program. These changes were made as a part of a continuing enhancement process to address issues raised by nuclear utility personnel and the NRC. For review purposes, a comparison between Supplement 11 of the 2001 Edition of Section XI and the current PDI program is provided. Wording in this comparison is the same wording that was provided in a similar comparison for RR-36, except that the changes made to the PDI program, since the issuance of RR-36, have been included and are highlighted in **Bold**. (Note: The comparison with Code Case N-663 which was previously provided in RR-36 was omitted).

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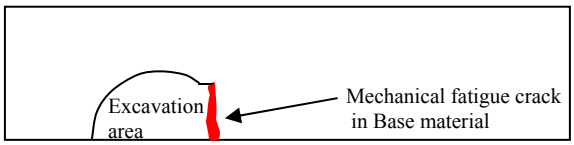
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

See References for dates and TAC numbers associated with RR-36.

Proposed Alternative and Basis for Use:

In lieu of the requirements of ASME Section XI, 2001 Edition, Appendix VIII, Supplement 11, the requirements of the PDI Program will be used. Major differences between 2001 Edition Appendix VIII requirements and PDI Program requirements are discussed below.

Paragraph 1.1(d)(1), requires that all base metal flaws be cracks. As illustrated below, implanting a crack requires excavation of the base material on at least one side of the flaw. While this may be satisfactory for ferritic materials, it does not produce a useable axial flaw in austenitic materials because the sound beam, which normally passes only through base material, must now travel through weld material on at least one side, producing an unrealistic flaw response. To resolve this issue, the PDI program revised this paragraph to allow use of alternative flaw mechanisms under controlled conditions. For example, alternative flaws shall be limited to when implantation of cracks precludes obtaining an effective ultrasonic response, flaws shall be semielliptical with a tip width of less than or equal to 0.002 inches, and at least 70 percent of the flaws in the detection and sizing test shall be cracks and the remainder shall be alternative flaws.



Relief is requested to allow closer spacing of flaws provided they didn't interfere with detection or discrimination. The existing specimens used to date for qualification to the Tri-party (NRC/BWROG/EPRI) agreement have a flaw population density greater than allowed by the current Code requirements. These samples have been used successfully for all previous qualifications under the Tri-party agreement program. To facilitate their use and provide continuity from the Tri-party agreement program to Supplement 11, the PDI Program has merged the Tri-party test specimens into their weld overlay program. For example: the requirement for using IWA-3300 for proximity flaw evaluation in paragraph 1.1(e)(1) was excluded, instead indications will be sized based on their individual merits; paragraph 1.1(d)(1) includes the statement that intentional overlay fabrication flaws shall not interfere with ultrasonic detection or characterization of the base metal flaws; paragraph 1.1(e)(2)(a)(1) was modified to require that a base metal grading unit include at least 1 in. of the length of the overlaid weld, rather than 3 inches; paragraph 1.1(e)(2)(a)(3) was modified to require sufficient unflawed overlaid weld and base metal to exist on all sides of the grading unit to preclude interfering reflections from adjacent flaws, rather than the I inch requirement of Supplement 11; paragraph 1.1(e)(2)(b)(l) was modified to define an overlay fabrication grading unit as including the overlay material and the base metal-to-overlay interface for a length of at least 1 in, rather than the 6 sq. in. requirement of Supplement 11; and paragraph 1.1(e)(2)(b)(2) states that overlay fabrication grading units designed to be unflawed shall be separated by unflawed

overlay material and unflawed base metal-to-overlay interface for at least 1 in. at both ends, rather than around its entire perimeter.

Additionally, the requirement for axially oriented overlay fabrication flaws in paragraph 1.1(e)(1) was excluded from the PDI Program as an improbable scenario. Weld overlays are typically applied using automated gas tungsten arc welding techniques with the filler metal being applied in a circumferential direction. Because resultant fabrication induced discontinuities would also be expected to have major dimensions oriented in the circumferential direction axial overlay fabrication flaws are unrealistic.

The PDI Program revised paragraph 2.0 allowing the overlay fabrication and base metal flaw tests to be performed separately. The requirement in paragraph 3.2(b) for reporting all extensions of cracking into the overlay is omitted from the PDI Program because it is redundant to the RMS calculations performed in paragraph 3.2(c) and it's presence adds confusion and ambiguity to depth sizing as required by paragraph 3.2(c). This also makes the weld overlay program consistent with the Supplement 2 depth sizing criteria.

*In Paragraph 1.1(e)(2)(a)(1) the phrase "*and base metal on both sides"*, was inadvertently included in the description of a base metal grading unit. The PDI program intentionally excludes this requirement because some of the qualification samples include flaws on both sides of the weld.*

*To avoid confusion several instances of the term "cracks" or "cracking" were changed to the term "flaws" because of the use of alternative flaw mechanisms. Additionally, to avoid confusion, the overlay thickness tolerance contained in paragraph 1.1(b) last sentence, was reworded and the phrase "*and the remainder shall be alternative flaws" *was added to the next to last sentence in paragraph 1.1(d)(1). Additional editorial changes were made to the PDI program to address an earlier NRC RAI.*

PDI and the NRC have worked closely to reach agreement on the criteria related to the subject examination requirements and both agree that the PDI program is an acceptable alternative to Appendix VIII, Supplement 11. Compliance with the PDI program will provide an adequate level of quality and safety for examination of the affected welds (i.e., weld overlay repairs). Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), SNC requests approval to use the PDI program, in lieu of the ASME Section XI, Appendix VIII, Supplement 11 requirements.

Duration of Proposed Alternative:

The proposed alternative is applicable for the 4th Inservice Inspection Interval.

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PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Precedents: This request was approved for the 3rd Inservice Inspection Interval as RR-36.

References: SNC letter dated January 18, 2002 submitting RR-36.

Approval for RR-36 was granted for the 3rd interval by NRC letter dated January 14, 2003 - TAC numbers MB3875 and MB3876.

Status: **Approved by NRC SE dated 11/09/05..**

SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-5, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2
Interval-Interval Dates:	4th ISI Interval extending from January 1, 2006 through December 31, 2015.
Requested Date for Approval:	Approval is requested by December 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006).
ASME Code Components Affected:	Approximately 50 (per unit), small diameter (≤ 1 inch), Class 1, reactor coolant system (RCS) pressure boundary vent and drain connections.
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda.
Applicable Code Requirements:	IWB-5222 (b) requires that the pressure retaining boundary during the system leakage test conducted at or near the end of each inspection interval extend to all Class 1 pressure retaining components within the system boundary.
Reason for Request:	This alternative is a re-submittal of NRC approved 3rd interval relief request RR-17. RR-17 was based on the 1989 Edition of Section XI (no addenda) while this 4th interval request is based on the 2001 Edition through the 2003 Addenda; however, there have been no substantive changes to this alternative, to the Code requirements or to the basis for use which would alter the previous NRC Safety Evaluation conclusions. (See References for dates and TAC numbers associated with RR-17). SNC believes that there are potential personnel safety and ALARA issues associated with pressurizing these connections. These issues are as follows: 1. Pressure testing these connections to the outboard valve requires the inboard isolation valves to be opened and subjects the valves and piping to RCS nominal operating pressure and near operating temperature. Opening the inboard valve at these conditions is contradictory to the requirement for double isolation of the RCS and thus creates the possibility for safety concerns for personnel performing visual examination of the connections. 2. Performing the test with the inboard valves open requires several man-hours to position the valves for the test and then to restore them after the test is complete. All of these valves are located in close proximity of the RCS main loop piping thus requiring personnel entry into high radiation areas within the containment. Based on estimates from Operations Department and Health Physics department personnel and previous outage data, it was previously estimated for Relief Request 17, that the dose associated with valve alignment and realignment would be approximately 1.6 man-Rem per test. 3. Since this test would be performed near the end of an outage, when all RCS work has been completed, the time required to open and then close these vent/drain valves could

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impact the outage schedule.

Proposed Alternative and Basis for Use:

It is proposed that the 10-year Class 1 System Leakage Test be performed with the subject vent and drain valves in the closed position. These connections are equipped with manual valves which provide for double isolation of the reactor coolant system (RCS) pressure boundary. These valves are generally maintained closed during normal operation; therefore, the piping outboard of the first isolation valve is not normally pressurized. The proposed alternative provides reasonable assurance that the structural integrity of the Reactor Coolant Pressure Boundary will be maintained, based on the following:

1. ASME Section XI Code, paragraph IWA-4540, provides the requirements for hydrostatic pressure testing of piping and components after repairs by welding to the pressure boundary. IWA-4540(b)(6) excludes component connections, piping, and associated valves that are 1 inch nominal pipe size and smaller from the hydrostatic pressure test requirement after welded repairs. Therefore, requiring a leakage test and visual examination of these ≤ 1 inch diameter RCS vent/drain connections once each 10-year interval is unwarranted considering that a repair weld on the same connections is exempted by the ASME XI Code.

2. The non-isolable portion of the RCS vent and drain connections will be pressurized and visually examined as required. Only the isolable portion of these small diameter vent and drain connections will not pressurized.

3. A typical vent/drain connection includes two manual valves separated by a short pipe nipple which is connected to the RCS via another short pipe nipple and a half coupling. All connections are typically socket-welded and the welds received a surface examination after installation. The piping and valves are nominally heavy wall (Sch. 160 pipe and 6000# valve bodies). The vents and drains are not subjected to high stresses or cyclic loads, and the design ratings are significantly greater than RCS operating or design pressure.

4. The Technical Specifications (TS) require RCS leakage monitoring (TS 3.4.4 and 3.4.5) during normal operation. Should any of the TS limits be exceeded, then appropriate corrective actions, which may include shutting the plant down, are required to identify the source of the leakage and restore the RCS boundary integrity.

As shown above, the proposed alternative will provide reasonable assurance that structural integrity is being maintained. Additionally, imposition of the Code requirements would cause a burden that would not be compensated for by an increase in quality and safety. Therefore, the proposed alternative should be granted pursuant to 10CFR50.55a(a)(3)(ii).

Duration of Proposed Alternative:

The proposed alternative is applicable for the 4th Inservice Inspection Interval.

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ISI-ALT-5, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Precedents: This was approved for the 3rd Inservice Inspection Interval as RR-17.

References: SNC letter HL-5583 dated February 27, 1998 submitting RR-17.

Approval for RR-17 was granted for the 3rd Interval by NRC letter dated September 3, 1998 - TAC numbers MA2118 and MA2119.

Status: **Approved by NRC SE dated 11/09/05.**

SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2.
Interval-Interval Dates:	4th ISI Interval extending from January 1, 2006 through December 31, 2015.
Requested Date for Approval and Basis	Approval is requested by December 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006).
ASME Code Components Affected:	Class 1, Pressure Retaining Welds in Piping, subject to ASME Section XI, Appendix VIII, Supplement 10, examination (dissimilar metal weld examinations).
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda is the overall 4th Interval Code of Record. However, 10 CFR 50.55a(b)(2)(xxiv) prohibits the use of Appendix VIII and Supplements to Appendix VIII of the 2002 Addenda through the 2003 Addenda; therefore, the 2001 Edition is used.
Applicable Code Requirements:	The Code requirements for which relief is requested are all contained within Appendix VIII, Supplement 10.
Reason for Request:	This alternative is a re-submittal of applicable portions of NRC approved 3rd interval relief request GR-03-01, which allows SNC to use the Performance Demonstration Initiative (PDI) Program in lieu of Section XI, Appendix VIII requirements. GR-03-01 was based on the 1995 Edition with 1996 Addenda of Supplement 10 while this new 4th interval request is based on the 2001 Edition of Supplement 10. GR-03-01 listed eleven items where PDI differed from the 1995 Code with 1996 Addenda; however, ten of these items were subsequently incorporated into the 2001 Edition of the Code. However, Item 11 which addressed modifications to Table VIII-S2-1 was not incorporated into the 2001 Edition; therefore, approval to continue to use the PDI modified version of Table VIII-S2-1 is needed. There have been no substantive changes to the Code requirements or to the *Basis for Use* which would alter the previous NRC Safety Evaluation conclusion. See References for dates and TAC numbers associated with RR-GR-03-01.
Proposed Alternative and Basis for Use:	In lieu of the requirements of ASME Section XI, 2001 Edition, Appendix VIII, Supplement 10, Table VIII-S2-1 requirements, the marked-up table shown below will be used. Table VIII-S2-1 was revised to reflect the reduced number of unflawed grading units and allowable false calls. As a part of ongoing Section XI Code activities, Pacific Northwest National Laboratory (PNNL) reviewed the statistical significance of these revisions and offered the modified table.

SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

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TABLE VIII-S2-1
PERFORMANCE DEMONSTRATION DETECTION TEST
ACCEPTANCE CRITERIA

Detection Test Acceptance Critera		False Call Test Acceptance Criteria	
No. of Flawed Grading Units	Minimum Detection Criteria	No. of Unflawed Grading Units	Maximum Number of False Calls
~~5~~	~~5~~	~~10~~	~~0~~
~~6~~	~~6~~	~~12~~	~~1~~
~~7~~	~~6~~	~~14~~	~~1~~
~~8~~	~~7~~	~~16~~	~~2~~
~~9~~	~~7~~	~~18~~	~~2~~
10	8	~~20~~ 15	~~3~~ 2
11	9	~~22~~ 17	~~3~~ 3
12	9	~~24~~ 18	~~3~~ 3
13	10	~~26~~ 20	~~4~~ 3
14	10	~~28~~ 21	~~5~~ 3
15	11	~~30~~ 23	~~5~~ 3
16	12	~~32~~ 24	~~6~~ 4
17	12	~~34~~ 26	~~6~~ 4
18	13	~~36~~ 27	~~7~~ 4
19	13	~~38~~ 29	~~7~~ 4
20	14	~~40~~ 30	~~8~~ 5

The NRC staff has previously determined that the above proposed alternative to Supplement 10, as administered by the EPRI-PDI Program, will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), SNC requests approval to use alternative, in lieu of the ASME Section XI, Appendix VIII, Supplement 10 requirements.

Duration of Proposed Alternative:

The proposed alternative is applicable for the 4th Inservice Inspection Interval.

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ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Precedents: This request was approved for the 3rd Inservice Inspection Interval as GR-03-01.

SNC letter NL-03-0596 dated May 14, 2003 submitting GR-03-01.

References: Approval for GR-03-01 was granted for the 3rd interval by NRC letter dated August 6, 2003 - TAC numbers MB9023 and MB9024.

Status: **Approved by NRC SE dated 11/09/05.**

SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-7, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2.
Interval-Interval Dates:	4th ISI Interval, January 1, 2006 through December 31, 2015.
Requested Date for Approval and Basis	Approval is requested by December 1, 2006 to support examinations required during the 1st Period of the 4th Interval.
ASME Code Components Affected:	Class 3 Buried Piping
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda
Applicable Code Requirements:	IWA-5244(b)(1) requires either a pressure loss test or a test that determines the change in flow between the ends of the buried components for isolable sections of buried piping. The acceptable rate of pressure loss or flow shall be established by the Owner.
Reason for Request:	Sections of Plant Service Water (PSW) and Residual Heat Removal Service Water (RHRSW) System buried piping were not designed with consideration for isolation valves adequate for performing a pressure loss type test or instrumentation adequate for measuring changes in flow between the ends of the buried piping. The PSW and RHRSW Systems both contain large diameter buried piping (30" PSW and 18" RHRSW) that runs from the River Intake Structure to the Reactor Building which is > 1000 feet in length. The subject piping design did not provide for isolation valves that are capable of supporting a pressure loss type test considering the volume of the piping and the available capacity of test pumps. The system isolation valves were only intended to provide isolation for maintenance activities with only static system pressure. PSW was designed with a single flow indicator located at the discharge of each pump and RHRSW was only designed with a single flow indicator per train located near the RHR Heat Exchanger. Therefore, the installed instrumentation is inadequate for measuring the flow difference at each end of the buried piping. The use of Ultrasonic Flow Instrumentation was considered, but the piping configurations do not provide for the straight runs of piping required for accurate flow measurement.

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PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)**

The accident analysis requires a PSW flow rate of 4,428 gpm and a RHRSW flow rate of 4,000 gpm. Both the PSW and RHRSW systems include four pumps each with two pumps designated to each of two independent trains. The PSW pumps have a design flow rate of 8,500 gpm and the RHRSW pumps have a design flow rate of 4,000 gpm. Therefore, to meet accident analysis requirements, only one pump per train is required for both PSW and RHRSW. Therefore, each of the independent trains of both systems can accommodate a large leak and still satisfy the accident analysis requirements.
IWA-5244(b)(1) requires the Owner to establish the acceptance criteria for the buried piping test. Since there is no industry guidance for acceptance criteria, SNC considered that the allowable ASME OM Code instrument accuracy for pump Inservice Testing should be adequate. The ASME OM Code requires flow instruments with a calibration accuracy of ±2%. This would allow for a leak of 89 gpm for PSW (i.e., 2% of required accident flow) and 80 gpm for RHRSW (i.e., 2% of required accident flow) which seems reasonable for assuring the integrity of the buried piping. Each of the PSW and RHRSW pumps are tested in accordance with the sites IST Program on a quarterly frequency. The PSW pumps are tested at a flow rate of > 6,000 gpm and the RHRSW pumps are tested at 4,000 gpm. Each pump test requires approximately thirty-minutes to perform. Therefore, using the 2% acceptance criteria, PSW could experience a leak of > 2,600 gallons and RHRSW a leak of ≈ 2,400 gallons, and still complete a successful pressure test. Previous plant experience with leaks in non-safety related buried piping indicates that leaks much less than these are more readily identified by visual observation of the surrounding ground surface area.

At least one PSW pump is required to be in operation at all times during normal plant power operation. At least one RHRSW pump is required to be in operation for extended periods of time at the beginning and end of each refueling outage. Therefore, both systems are inservice for extended periods of time and leaks even smaller than those discussed above would be readily identified by plant personnel performing routine rounds inspections.

Proposed Alternative and Basis for Use:

SNC proposes to perform visual examination of the ground surface area immediately above each buried section of PSW and RHRSW annually in lieu of performing the test required by IWA-5244(b)(1). The visual examinations will be performed only after the subject piping has been in operation at nominal operating conditions for a minimum of 24-hours. The ASME Section XI code only requires a pressure test once each period (40-months). Additionally, Operations personnel will be

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PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)**

instructed to be observant of standing water or moist ground above the buried piping during daily routine rounds which are performed at least once per shift (12-hours).

Specific annual visual examinations in conjunction with daily Operator observations will provide adequate detection of any leaks in buried PSW or RHRSW piping in adequate time to perform corrective actions. These visual examinations provide an adequate level of quality and safety; therefore, are acceptable per 10 CFR 50.55a(a)(3)(i).

Duration of Proposed Alternative: The 4th ISI Interval beginning January 1, 2006 and ending December 31, 2015.

Precedents: None.

References: None.

Status: Awaiting NRC approval.

SOUTHERN NUCLEAR OPERATING COMPANY
ISI-EX-01, Version 3.0
10 CFR 50.55a EXEMPTION REQUEST

Plant Site-Unit: Edwin I. Hatch Nuclear Plant-Units 1 and 2

Interval-Interval Dates: 4th ISI Interval extending from January 1, 2006 through December 31, 2015.

Requested Date for Approval: Approval is requested by November 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006)

ASME Code Components Affected: Accessible surface areas of the Containment Vessel pressure retaining boundary Vent System, requiring visual examination per ASME Section XI, Table IWE-2500-1, Category E-A, Item Number E1.20.

Applicable Code Edition and Addenda: ASME Section XI, 2001 Edition through the 2003 Addenda

Applicable Requirements: 10 CFR 50.55a(b)(2)(ix)(G) requires a VT-3 examination of components in IWE Table 2500-1, Category E-A, Item E1.20 in lieu of the ASME Section XI required General Visual Examination (CFR dated October 4, 2004).

Reason for Request: During the 3rd inservice inspection interval, the 1992 Code with 1992 Addenda required a VT-3 examination of the accessible surface areas of the vent system. SNC requested approval in Relief Request RR-MC-9 to use a General Visual examination in lieu of the VT-3 examination. This request was approved by the NRC. For the 4th interval, the 2001 Edition through the 2003 Addenda does not require the VT-3 examination; however in 10 CFR 50.55a(b)(2)(ix)(G), the NRC added a requirement to perform the VT-3 examinations.

SNC believes that the examination provisions established in previous Relief Request RR-MC-9 have proven to be sufficient to maintain the structural integrity and leak-tightness of the containment surfaces; therefore, SNC is requesting to continue the use of similar provisions during the 4th interval.

See References for dates and TAC numbers associated with RR-MC-9.

Proposed Alternative and Basis for Use: In lieu of conducting the 10CFR50.55a(b)(2)(ix)(G) required visual examination (VT-3), SNC proposes to perform a general visual type examination on all non-submerged, accessible pressure boundary surfaces of the vent system. This general visual type examination will be performed in accordance with the Plant Hatch "Qualified (N) Coatings" program. The details of this program were provided in the October 19, 1998 response to NRC Generic Letter 98-04, "Potential for Degradation of the Emergency Core Cooling System and the Containment Spray System After a Loss-of-Coolant Accident Because of Construction and Protective Coating

SOUTHERN NUCLEAR OPERATING COMPANY
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Deficiencies and Foreign Material in Containment." The procedures and personnel qualifications applicable for the coatings program implementation are in compliance with Regulatory Guide 1.54, 1973, and the implementation is based on the following documents: (1) ANSI N101.2-1972, "Protective Coatings (Plants) for Light Water Nuclear Reactor Containment Facilities;" (2) ANSI N101.4-1972, "Quality Assurance for Protective Coatings Applied to Nuclear Facilities;" and (3) EPRI Report TR-109937, "Guideline on Nuclear Safety-Related Coatings." This program was approved by the NRC in a letter dated November 19, 1999.

The "Qualified (N) Coatings" program examination frequency is equivalent to that of the ASME XI Code and the program requires that when evidence of degradation is detected, a detailed examination and evaluation be performed. The detailed visual examination would be performed in accordance with the provisions of ASME XI paragraph IWE-2310(c).

The exterior surfaces of the Vent System that connects the BWR Drywell to the Suppression Pool are located in the Reactor Building. The Reactor Building environment does not pose adverse conditions that would promote rapid degradation of the outside pressure boundary surfaces of the Vent System. The interior surfaces of the Vent System that connects the Drywell to the suppression pool and the portions of the vent system located inside the Suppression Pool are maintained in a nitrogen inerted environment during normal power operation in accordance with Technical Specification requirements. History and previous examinations have indicated that this environment does not promote rapid degradation of the surfaces.

The requirements specified for a VT-3 were developed for detecting flaws in metal components and are more stringent than those required for detection of degradation such as corrosion. Since corrosion of base metal is the primary issue of concern for containment pressure boundary surface areas, a general visual type examination, in accordance with the site "Qualified (N) Coatings" program, is sufficient to inspect the subject surface areas of the containment and will provide an acceptable level of quality and safety. Therefore, SNC hereby requests an exemption from the requirements of 10CFR50.55a (b)(2)(ix)(G) pursuant to 10 CFR 50.12(a)(1) and 10 CFR 50.12(a)(2)(ii) since granting the exemption will not present an undue risk to the public health and safety, and the application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of the rule.

Duration of Proposed Exemption:

The proposed exemption is applicable for the 4th Inservice Inspection Interval.

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Precedents: A similar request was approved for the 3rd Inservice Inspection Interval as RR-MC-9.

References: SNC letter HL-5957, dated July 19, 2000 submitting RR-MC-9.

Approval for RR-MC-9 was granted for the 3rd Interval by NRC letter dated October 04, 2000 - TAC numbers MA9569 and MA9570.

Status: **Approved by NRC letter dated 1/06/06**.

ENCLOSURE 3

NRC CAVEATS

TO THE USE OF THE 2003

ADDENDA

The NRC adopted the use of the 2003 Addenda to Section XI with numerous caveats. The caveats which are shown in 10 CFR 50.55a have been listed below by subject area.

EXAMINATION OF CONCRETE CONTAINMENTS

Per 50.55a(b)(2)(viii), Licensees applying Subsection IWL, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section (the 2003 Addenda), shall apply paragraphs (b)(2)(viii)(E) through (b)(2)(viii)(G) of this section.

(b)(2)(viii)(E) For Class CC applications, the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas. For each inaccessible area identified, the licensee shall provide the following in the ISI Summary Report required by IWA-6000:

- (b)(2)(viii)(E)(*1*) A description of the type and estimated extent of degradation, and the conditions that led to the degradation;
- (b)(2)(viii)(E)(*2*) An evaluation of each area, and the result of the evaluation, and;
- (b)(2)(viii)(E)(*3*) A description of necessary corrective actions.

(b)(2)(viii)(F) Personnel that examine containment concrete surfaces and tendon hardware, wires, or strands must meet the qualification provisions in IWA-2300. The "owner-defined" personnel qualification provisions in IWL-2310(d) are not approved for use.

(b)(2)(viii)(G) Corrosion protection material must be restored following concrete containment post-tensioning system repair and replacement activities in accordance with the quality assurance program requirements specified in IWA-1400.

EXAMINATION OF METAL CONTAINMENTS AND THE LINERS OF CONCRETE CONTAINMENTS.

Per 50.55a(b)(2)(ix), Licensees applying Subsection IWE, 1998 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section (2003 Addenda), shall satisfy the requirements of paragraphs (b)(2)(ix)(A), (b)(2)(ix)(B), and (b)(2)(ix)(F) through (b)(2)(ix)(I) of this section.

(b)(2)(ix)(A) For Class MC applications, the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas. For each inaccessible area identified, the licensee shall provide the following in the ISI Summary Report as required by IWA-6000:

- (b)(2)(ix)(A)(*1*) A description of the type and estimated extent of degradation, and the conditions that led to the degradation;
- (b)(2)(ix)(A)(*2*) An evaluation of each area, and the result of the evaluation; and
- (b)(2)(ix)(A)(*3*) A description of necessary corrective actions.

(b)(2)(ix)(B) When performing remotely the visual examinations required by Subsection IWE, the maximum direct examination distance specified in Table IWA-2210-1 may be extended and the minimum illumination requirements specified in Table IWA-2210-1 may be decreased provided that the conditions or indications for which the visual examination is performed can be detected at the chosen distance and illumination.

(b)(2)(ix)(F) VT-1 and VT-3 examinations must be conducted in accordance with IWA-2200. Personnel conducting examinations in accordance with the VT-1 or VT-3 examination method shall be qualified in accordance with IWA-2300. The "owner-defined" personnel qualification provisions in IWE-2330(a) for personnel that conduct VT-1 and VT-3 examinations are not approved for use.

(b)(2)(ix)(G) The VT-3 examination method must be used to conduct the examinations in Items E1.12 and E1.20 of Table IWE-2500-1, and the VT-1 examination method must be used to conduct the examination in Item E4.11 of Table IWE-2500-1. An examination of the pressure-retaining bolted connections in Item E1.11 of Table IWE-2500-1 using the VT-3 examination method must be conducted once each interval. The "owner-defined" visual examination provisions in IWE-2310(a) are not approved for use for VT-1 and VT-3 examinations.

(b)(2)(ix)(H) Containment bolted connections that are disassembled during the scheduled performance of the examinations in Item E1.11 of Table IWE-2500-1 must be examined using the VT-3 examination method. Flaws or degradation identified during the performance of a VT-3 examination must be examined in accordance with the VT-1 examination method. The criteria in the material specification or IWB-3517.1 must be used to evaluate containment bolting flaws or degradation. As an alternative to performing VT-3 examinations of containment bolted connections that are disassembled during the scheduled performance of Item E1.11, VT-3 examinations of containment bolted connections may be conducted whenever containment bolted connections are disassembled for any reason.

(b)(2)(ix)(I) The ultrasonic examination acceptance standard specified in IWE-3511.3 for Class MC pressure-retaining components must also be applied to metallic liners of Class CC pressure-retaining components.

QUALITY ASSURANCE

Per 50.55a(b)(2)(x), when applying Section XI editions and addenda later than the 1989 Edition, the requirements of NQA-1, "Quality Assurance Requirements for Nuclear Facilities," 1979 Addenda through the 1989 Edition, are acceptable as permitted by IWA-1400 of Section XI, if the licensee uses its 10 CFR Part 50, Appendix B, quality assurance program, in conjunction with Section XI requirements. Commitments contained in the licensee's quality assurance program description that are more stringent than those contained in NQA-1 must govern Section XI activities. Further, where NQA-1 and Section XI do not address the commitments contained in the licensee's Appendix B quality assurance program description, the commitments must be applied to Section XI activities.

CLASS 1 PIPING

Per 50.55a(b)(2)(xi), Licensees may not apply IWB-1220, "Components Exempt from Examination," of Section XI, 1989 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, and shall apply IWB-1220, 1989 Edition.

Per 50.55a (g)(4)(iii), Licensees may, but are not required to, perform the surface examinations of High Pressure Safety Injection Systems specified in Table IWB-2500-1, Examination Category B-J, Item Numbers B9.20, B9.21, and B9.22.

UNDERWATER WELDING

Per 50.55a(b)(2)(xii), *t*he provisions in IWA-4660, "Underwater Welding," of Section XI, 1997 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, are not approved for use on irradiated material.

MECHANICAL CLAMPING DEVICES

Per 50.55a(b)(2)(xiii), Licensees may use the provisions of Code Case N-523-1, "Mechanical Clamping Devices for Class 2 and 3 Piping." Licensee choosing to apply Code Case N-523-1 shall apply all of its provisions.

50.55a(b)(2)(xiii)(A) When implementing Code Case N-513, the specific safety factors in paragraph 4.0 must be satisfied.

50.55a(b)(2)(xiii)(B) Code Case N-513 may not be applied to: components other than pipe and tube, such as pumps, valves, expansion joints, and heat exchangers; leakage through a flange gasket; threaded connections employing nonstructural seal welds for leakage prevention (through seal weld leakage is not a structural flaw, thread integrity must be maintained); and degraded socket welds.

APPENDIX VIII PERSONNEL QUALIFICATION

50.55a(b)(2)(xxiv). The use of Appendix VIII and the supplements to Appendix VIII and Article I-3000 of Section XI of the ASME BPV Code, 2002 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, is prohibited. (Therefore, the 2001 Edition is used).

50.55a(b)(2)(xiv). All personnel qualified for performing ultrasonic examinations in accordance with Appendix VIII shall receive 8 hours of annual hands-on training on specimens that contain cracks. Licensees applying the 1999 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section (2001 Edition) may use the annual practice requirements in VII-4240 of Appendix VII of Section XI in place of the 8 hours of annual hands-on training provided that the supplemental practice is performed on material or welds that contain cracks, or by analyzing prerecorded data from material or welds that contain cracks. In either case, training must be completed no earlier than 6 months prior to performing ultrasonic examinations at a licensee's facility.

50.55a(b)(2)(xv) *Appendix VIII specimen set and qualification requirements.* The following provisions may be used to modify implementation of Appendix VIII of Section XI, 1995 Edition through the 2001 Edition. Licensees choosing to apply these provisions shall apply all of the following provisions under this paragraph except for those in § 50.55a(b)(2)(xv)(F) which are optional.

50.55a(b)(2)(xv)(A) When applying Supplements 2, 3, and 10 to Appendix VIII, the following examination coverage criteria requirements must be used:

- 50.55a(b)(2)(xv)(A)(1) Piping must be examined in two axial directions, and when examination in the circumferential direction is required, the circumferential examination must be performed in two directions, provided access is available. Dissimilar metal welds must be examined axially and circumferentially.
- 50.55a(b)(2)(xv)(A)(2) Where examination from both sides is not possible, full coverage credit may be claimed from a single side for ferritic welds. Where examination from both sides is not possible on austenitic welds or dissimilar metal welds, full coverage credit from a single side may be claimed only after completing a successful single-sided Appendix VIII demonstration using flaws on the opposite side of the weld. Dissimilar metal weld qualifications must be demonstrated from the austenitic side of the weld and may be used to perform examinations from either side of the weld.

50.55a(b)(2)(xv)(B) The following provisions must be used in addition to the requirements of Supplement 4 to Appendix VIII:

- 50.55a(b)(2)(xv)(B)(*1*) Paragraph 3.1, Detection acceptance criteria--Personnel are qualified for detection if the results of the performance demonstration satisfy

the detection requirements of ASME Section XI, Appendix VIII, Table VIII-S4-1 and no flaw greater than 0.25 inch through wall dimension is missed.

- 50.55a(b)(2)(xv)(B)(*2*) Paragraph 1.1(c), Detection test matrix--Flaws smaller than the 50 percent of allowable flaw size, as defined in IWB-3500, need not be included as detection flaws. For procedures applied from the inside surface, use the minimum thickness specified in the scope of the procedure to calculate a/t. For procedures applied from the outside surface, the actual thickness of the test specimen is to be used to calculate a/t.

50.55a(b)(2)(xv)(C) When applying Supplement 4 to Appendix VIII, the following provisions must be used:

- 50.55a(b)(2)(xv)(C)(*1*) A depth sizing requirement of 0.15 inch RMS must be used in lieu of the requirements in Subparagraphs 3.2(a) and 3.2(c), and a length sizing requirement of 0.75 inch RMS must be used in lieu of the requirement in Subparagraph 3.2(b).
- 50.55a(b)(2)(xv)(C)(*2*) In lieu of the location acceptance criteria requirements of Subparagraph 2.1(b), a flaw will be considered detected when reported within 1.0 inch or 10 percent of the metal path to the flaw, whichever is greater, of its true location in the X and Y directions.
- 50.55a(b)(2)(xv)(C)(*3*) In lieu of the flaw type requirements of Subparagraph 1.1(e)(1), a minimum of 70 percent of the flaws in the detection and sizing tests shall be cracks. Notches, if used, must be limited by the following:
  - 50.55a(b)(2)(xv)(C)(*3*)(*i*) Notches must be limited to the case where examinations are performed from the clad surface.
  - 50.55a(b)(2)(xv)(C)(*3*)(*ii*) Notches must be semielliptical with a tip width of less than or equal to 0.010 inches.
  - 50.55a(b)(2)(xv)(C)(*3*)(*iii*) Notches must be perpendicular to the surface within ± 2 degrees.
  - 50.55a(b)(2)(xv)(C)(*4*) In lieu of the detection test matrix requirements in paragraphs 1.1(e)(2) and 1.1(e)(3), personnel demonstration test sets must contain a representative distribution of flaw orientations, sizes, and locations.

50.55a(b)(2)(xv)(D) The following provisions must be used in addition to the requirements of Supplement 6 to Appendix VIII:

- 50.55a(b)(2)(xv)(D)(*1*) Paragraph 3.1, Detection Acceptance Criteria--Personnel are qualified for detection if:
  - 50.55a(b)(2)(xv)(D)(*1*)(*i*) No surface connected flaw greater than 0.25 inch through wall has been missed.
  - 50.55a(b)(2)(xv)(D)(*1*)(*ii*) No embedded flaw greater than 0.50 inch through wall has been missed.
- 50.55a(b)(2)(xv)(D)(*2*) Paragraph 3.1, Detection Acceptance Criteria--For procedure qualification, all flaws within the scope of the procedure are detected.

- 50.55a(b)(2)(xv)(D)(*3*) Paragraph 1.1(b) for detection and sizing test flaws and locations--Flaws smaller than the 50 percent of allowable flaw size, as defined in IWB-3500, need not be included as detection flaws. Flaws which are less than the allowable flaw size, as defined in IWB-3500, may be used as detection and sizing flaws.
- 50.55a(b)(2)(xv)(D)(*4*) Notches are not permitted.

50.55a(b)(2)(xv)(E) When applying Supplement 6 to Appendix VIII, the following provisions must be used:

- 50.55a(b)(2)(xv)(E)(*1*) A depth sizing requirement of 0.25 inch RMS must be used in lieu of the requirements of subparagraphs 3.2(a), 3.2(c)(2), and 3.2(c)(3).
- 50.55a(b)(2)(xv)(E)(*2*) In lieu of the location acceptance criteria requirements in Subparagraph 2.1(b), a flaw will be considered detected when reported within 1.0 inch or 10 percent of the metal path to the flaw, whichever is greater, of its true location in the X and Y directions.
- 50.55a(b)(2)(xv)(E)(*3*) In lieu of the length sizing criteria requirements of Subparagraph 3.2(b), a length sizing acceptance criteria of 0.75 inch RMS must be used.
- 50.55a(b)(2)(xv)(E)(*4*) In lieu of the detection specimen requirements in Subparagraph 1.1(e)(1), a minimum of 55 percent of the flaws must be cracks. The remaining flaws may be cracks or fabrication type flaws, such as slag and lack of fusion. The use of notches is not allowed.
- 50.55a(b)(2)(xv)(E)(*5*) In lieu of paragraphs 1.1(e)(2) and 1.1(e)(3) detection test matrix, personnel demonstration test sets must contain a representative distribution of flaw orientations, sizes, and locations.

50.55a(b)(2)(xv)(F) The following provisions may be used for personnel qualification for combined Supplement 4 to Appendix VIII and Supplement 6 to Appendix VIII qualification. Licensees choosing to apply this combined qualification shall apply all of the provisions of Supplements 4 and 6 including the following provisions:

- 50.55a(b)(2)(xv)(F)(*1*) For detection and sizing, the total number of flaws must be at least 10. A minimum of 5 flaws shall be from Supplement 4, and a minimum of 50 percent of the flaws must be from Supplement 6. At least 50 percent of the flaws in any sizing must be cracks. Notches are not acceptable for Supplement 6.
- 50.55a(b)(2)(xv)(F)(*2*) Examination personnel are qualified for detection and length sizing when the results of any combined performance demonstration satisfy the acceptance criteria of Supplement 4 to Appendix VIII.
- 50.55a(b)(2)(xv)(F)(*3*) Examination personnel are qualified for depth sizing when Supplement 4 to Appendix VIII and Supplement 6 to Appendix VIII flaws are sized within the respective acceptance criteria of those supplements.

50.55a(b)(2)(xv)(G) When applying Supplement 4 to Appendix VIII, Supplement 6 to Appendix VIII, or combined Supplement 4 and Supplement 6 qualification, the following additional provisions must be used, and examination coverage must include:

- 50.55a(b)(2)(xv)(G)(*1*) The clad to base metal interface, including a minimum of 15 percent T (measured from the clad to base metal interface), shall be examined from four orthogonal directions using procedures and personnel qualified in accordance with Supplement 4 to Appendix VIII.
- 50.55a(b)(2)(xv)(G)(*2*) If the clad-to-base-metal-interface procedure demonstrates detectability of flaws with a tilt angle relative to the weld centerline of at least 45 degrees, the remainder of the examination volume is considered fully examined if coverage is obtained in one parallel and one perpendicular direction. This must be accomplished using a procedure and personnel qualified for single-side examination in accordance with Supplement 6. Subsequent examinations of this volume may be performed using examination techniques qualified for a tilt angle of at least 10 degrees.
- 50.55a(b)(2)(xv)(G)(*3*) The examination volume not addressed by § 50.55a(b)(2)(xv)(G)(*1*) is considered fully examined if coverage is obtained in one parallel and one perpendicular direction, using a procedure and personnel qualified for single sided examination when the provisions of § 50.55a(b)(2)(xv)(G)(*2*) are met.

50.55a(b)(2)(xv)(H) When applying Supplement 5 to Appendix VIII, at least 50 percent of the flaws in the demonstration test set must be cracks and the maximum misorientation shall be demonstrated with cracks. Flaws in nozzles with bore diameters equal to or less than 4 inches may be notches.

50.55a(b)(2)(xv)(I) When applying Supplement 5, Paragraph (a), to Appendix VIII, the following provision must be used in calculating the number of permissible false calls: 50.55a(b)(2)(xv)(I)(*1*) The number of false calls allowed must be D/10, with a maximum of 3, where D is the diameter of the nozzle.

50.55a(b)(2)(xv)(J) [Reserved]

50.55a(b)(2)(xv)(K) When performing nozzle-to-vessel weld examinations, the following provisions must be used when the requirements contained in Supplement 7 to Appendix VIII are applied for nozzle-to-vessel welds in conjunction with Supplement 4 to Appendix VIII, Supplement 6 to Appendix VIII, or combined Supplement 4 and Supplement 6 qualification.

- 50.55a(b)(2)(xv)(K)(*1*) For examination of nozzle-to-vessel welds conducted from the bore, the following provisions are required to qualify the procedures, equipment, and personnel:
  - 50.55a(b)(2)(xv)(K)(*1*)(*i*) For detection, a minimum of four flaws in one or more full-scale nozzle mock-ups must be added to the test set. The specimens must comply with Supplement 6, paragraph 1.1, to Appendix

VIII, except for flaw locations specified in Table VIII S6-1. Flaws may be either notches, fabrication flaws or cracks. Seventy-five (75) percent of the flaws must be cracks or fabrication flaws. Flaw locations and orientations must be selected from the choices shown in paragraph (b)(2)(xv)(K)(*4*) of this section, Table VIII-S7-1--Modified, with the exception that flaws in the outer eighty-five (85) percent of the weld need not be perpendicular to the weld. There may be no more than two flaws from each category, and at least one subsurface flaw must be included.

- 50.55a(b)(2)(xv)(K)(*1*)(*ii*) For length sizing, a minimum of four flaws as in § 50.55a(b)(2)(xv)(K)(*1*)(*i*) must be included in the test set. The length sizing results must be added to the results of combined Supplement 4 to Appendix VIII and Supplement 6 to Appendix VIII. The combined results must meet the acceptance standards contained in § 50.55a(b)(2)(xv)(E)(*3*).
- 50.55a(b)(2)(xv)(K)(*1*)(*iii*) For depth sizing, a minimum of four flaws as in § 50.55a(b)(2)(xv)(K)(*1*)(*i*) must be included in the test set. Their depths must be distributed over the ranges of Supplement 4, Paragraph 1.1, to Appendix VIII, for the inner 15 percent of the wall thickness and Supplement 6, Paragraph 1.1, to Appendix VIII, for the remainder of the wall thickness. The depth sizing results must be combined with the sizing results from Supplement 4 to Appendix VIII for the inner 15 percent and to Supplement 6 to Appendix VIII for the remainder of the wall thickness. The combined results must meet the depth sizing acceptance criteria contained in §§ 50.55a(b)(2)(xv)(C)(*1*), 50.55a(b)(2)(xv)(E)(*1*), and 50.55a(b)(2)(xv)(F)(*3*).

- 50.55a(b)(2)(xv)(K)(*2*) For examination of reactor pressure vessel nozzle-to-vessel welds conducted from the inside of the vessel,
  - 50.55a(b)(2)(xv)(K)(*2*)(*i*) The clad to base metal interface and the adjacent examination volume to a minimum depth of 15 percent T (measured from the clad to base metal interface) must be examined from four orthogonal directions using a procedure and personnel qualified in accordance with Supplement 4 to Appendix VIII as modified by §§ 50.55a(b)(2)(xv)(B) and 50.55a(b)(2)(xv)(C).
  - 50.55a(b)(2)(xv)(K)(*2*)(*ii*) When the examination volume defined in § 50.55a(b)(2)(xv)(K)(*2*)(*i*) cannot be effectively examined in all four directions, the examination must be augmented by examination from the nozzle bore using a procedure and personnel qualified in accordance with 50.55a(b)(2)(xv)(K)(*1*).
  - 50.55a(b)(2)(xv)(K)(*2*)(*iii*) The remainder of the examination volume not covered by 50.55a(b)(*2*)(xv)(K)(*2*)(*ii*) or a combination of 50.55a(b)(2)(xv)(K)(*2*)(i) and § 50.55a(b)(2)(xv)(K)(*2*)(*ii*), must be examined from the nozzle bore using a procedure and personnel qualified in accordance with § 50.55a(b)(2)(xv)(K)(*1*), or from the vessel shell using a procedure and personnel qualified for single sided examination in accordance with Supplement 6 to Appendix VIII, as modified by

50.55a(b)(2)(xv)(D), 50.55a(b)(2)(xv)(E), 50.55a(b)(2)(xv)(F), and 50.55a(b)(2)(xv)(G).

- 50.55a(b)(2)(xv)(K)(*3*) For examination of reactor pressure vessel nozzle-to-shell welds conducted from the outside of the vessel,
  - 50.55a(b)(2)(xv)(K)(*3*)(*i*) The clad to base metal interface and the adjacent metal to a depth of 15 percent T, (measured from the clad to base metal interface) must be examined from one radial and two opposing circumferential directions using a procedure and personnel qualified in accordance with Supplement 4 to Appendix VIII, as modified by §§ 50.55a(b)(2)(xv)(B) and 50.55a(b)(2)(xv)(C), for examinations performed in the radial direction, and Supplement 5 to Appendix VIII, as modified by § 50.55a(b)(2)(xv)(J), for examinations performed in the circumferential direction.
  - 50.55a(b)(2)(xv)(K)(*3*)(*ii*) The examination volume not addressed by § 50.55a(b)(2)(xv)(K)(*3*)(*i*) must be examined in a minimum of one radial direction using a procedure and personnel qualified for single sided examination in accordance with Supplement 6 to Appendix VIII, as modified by §§ 50.55a(b)(2)(xv)(D), 50.55a(b)(2)(xv)(E), 50.55a(b)(2)(xv)(F), and 50.55a(b)(2)(xv)(G).
- 50.55a(b)(2)(xv)(K)(*4*) Table VIII-S7-1, "Flaw Locations and Orientations," Supplement 7 to Appendix VIII, is modified as follows:

Table VIII-S7-1--Modified

Flaw Locations and Orientations		
	Parallel to weld	**Perpendicular to weld**
Inner 15 percent	X	X
OD Surface	X	.....
Subsurface	X	.....

50.55a(b)(2)(xv)(L) As a modification to the requirements of Supplement 8, Subparagraph 1.1(c), to Appendix VIII, notches may be located within one diameter of each end of the bolt or stud.

50.55a(b)(2)(xv)(M) When implementing Supplement 12 to Appendix VIII, only the provisions related to the coordinated implementation of Supplement 3 to Supplement 2 performance demonstrations are to be applied.

50.55a(b)(2)(xvi) *Appendix VIII single side ferritic vessel and piping and stainless steel piping examination.*

50.55a(b)(2)(xvi)(A) Examinations performed from one side of a ferritic vessel weld must be conducted with equipment, procedures, and personnel that have demonstrated proficiency with single side examinations. To demonstrate equivalency

to two sided examinations, the demonstration must be performed to the requirements of Appendix VIII as modified by this paragraph and §§ 50.55a(b)(2)(xv) (B) through (G), on specimens containing flaws with non-optimum sound energy reflecting characteristics or flaws similar to those in the vessel being examined.

50.55a(b)(2)(xvi)(B) Examinations performed from one side of a ferritic or stainless steel pipe weld must be conducted with equipment, procedures, and personnel that have demonstrated proficiency with single side examinations. To demonstrate equivalency to two sided examinations, the demonstration must be performed to the requirements of Appendix VIII as modified by this paragraph and § 50.55a(b)(2)(xv)(A).

CERTIFICATION OF NDE PERSONNEL.

50.55a(b)(2)(xviii)(A) Level I and II nondestructive examination personnel shall be recertified on a 3-year interval in lieu of the 5-year interval specified in the 1997 Addenda and 1998 Edition of IWA-2314, and IWA-2314(a) and IWA-2314(b) of the 1999 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section.

50.55a(b)(2)(xviii)(B) Paragraph IWA-2316 of the 1998 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section (2003 Addenda), may only be used to qualify personnel that observe for leakage during system leakage and hydrostatic tests conducted in accordance with IWA-5211(a) and (b), 1998 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section.

50.55a(b)(2)(xviii)(C) When qualifying visual examination personnel for VT-3 visual examinations under paragraph IWA-2317 of the 1998 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section (2003 Addenda), the proficiency of the training must be demonstrated by administering an initial qualification examination and administering subsequent examinations on a 3-year interval.

SUBSTITUTION OF ALTERNATIVE METHODS

Per 50.55a(b)(2)(xix), the provisions for the substitution of alternative examination methods, a combination of methods, or newly developed techniques in the 1997 Addenda of IWA-2240 must be applied. The provisions in IWA-2240, 1998 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, are not approved for use. The provisions in IWA-4520(c), 1997 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, allowing the substitution of alternative examination methods, a combination of methods, or newly developed techniques for the methods specified in the Construction Code are not approved for use.

SYSTEM LEAKAGE TESTS.

Per 50.55a(b)(2)(xx), when performing system leakage tests in accordance IWA-5213(a), 1997 through 2002 Addenda, a 10-minute hold time after attaining test pressure is required for Class 2 and Class 3 components that are not in use during normal operating conditions, and no hold time is required for the remaining Class 2 and Class 3 components provided that the system has been in operation for at least 4 hours for insulated components or 10 minutes for uninsulated components.

TABLE IWB-2500-1 EXAMINATION REQUIREMENTS.

Per 50.55a(b)(2)(xxi)(A), the provisions of Table IWB-2500-1, Examination Category B-D, Full Penetration Welded Nozzles in Vessels, Items B3.40 and B3.60 (Inspection Program A) and Items B3.120 and B3.140 (Inspection Program B) in the 1998 Edition must be applied when using the 1999 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section. A visual examination with enhanced magnification that has a resolution sensitivity to detect a 1-mil width wire or crack, utilizing the allowable flaw length criteria in Table IWB-3512-1, 1997 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, may be performed in place of an ultrasonic examination.

50.55a(b)(2)(xxi)(B) The provisions of Table IWB-2500-1, Examination Category B-G-2, Item B7.80, that are in the 1995 Edition are applicable only to reused bolting when using the 1997 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section.

50.55a(b)(2)(xxi)(C) The provisions of Table IWB-2500-1, Examination Category B-K, Item B10.10, of the 1995 Addenda must be applied when using the 1997 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section.

SURFACE EXAMINATION

Per 50.55a(b)(2)(xxii), the use of the provision in IWA-2220, "Surface Examination," of Section XI, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, that allow use of an ultrasonic examination method is prohibited.

EVALUATION OF THERMALLY CUT SURFACES

Per 50.55a(b)(2)(xxiii), the use of the provisions for eliminating mechanical processing of thermally cut surfaces in IWA-4461.4.2 of Section XI, 2001 Edition

through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section are prohibited.

MITIGATION OF DEFECTS BY MODIFICATION

Per 50.55a(b)(2)(xxv), the use of the provisions in IWA-4340, "Mitigation of Defects by Modification," Section XI, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section are prohibited.

PRESSURE TESTING CLASS 1, 2, AND 3 MECHANICAL JOINTS

Per 50.55a(b)(2)(xxvi), the repair and replacement activity provisions in IWA-4540(c) of the 1998 Edition of Section XI for pressure testing Class 1, 2, and 3 mechanical joints must be applied when using the 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section.

REMOVAL OF INSULATION

Per 50.55a(b)(2)(xxvii)*, w*hen performing visual examinations in accordance with IWA-5242 of Section XI, 2003 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of the section, insulation must be removed from 17-4 PH or 410 stainless steel studs or bolts aged at a temperature below 1100 °F or having a Rockwell Method C hardness value above 30, and from A-286 stainless steel studs or bolts preloaded to 100,000 pounds per square inch or higher.

SNUBBERS

Per 50.55a(b)(3), as used in this section, references to the OM Code refer to the ASME Code for Operation and Maintenance of Nuclear Power Plants, and include the 1995 Edition through the 2003 Addenda subject to the following limitations and modifications:

50.55a(b)(3)(v) *Subsection ISTD.* Article IWF-5000, "Inservice Inspection Requirements for Snubbers," of the ASME BPV Code, Section XI, provides inservice inspection requirements for examinations and tests of snubbers at nuclear power plants. Licensees may use Subsection ISTD, "Inservice Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Power Plants," ASME OM Code, 1995 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(3) of this section, in place of the requirements for snubbers in Section XI, IWF-5200(a) and (b) and IWF-5300(a) and (b), by making appropriate changes to their technical specifications or licensee-controlled documents. Preservice and inservice examinations must be performed using the VT-3

ENCLOSURE 4

NRC

SAFETY EVALUATIONS

A copy of the safety evaluations may be found on the M&IS website.